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EDUCATIONAL REVIEW

PUBLISHED MONTHLY
Except July and August

VOLUME IV
JUNE—DECEMBER
1892

NEW YORK
HENRY HOLT AND COMPANY
London: Kegan Paul, Trench, Trübner & Co.
Berlin: Mayer & Müller
Paris: F. Alcan
1892

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15438.

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THE MERSHON COMPANY PRESS,
RAHWAY, N. J.

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☞ The names of contributors are printed in SMALL CAPITALS; subjects treated, in ordinary type: titles of books reviewed, in *italics*.

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EDUCATIONAL REVIEW

JUNE, 1892

I.

THE POLICY OF THE STANFORD UNIVERSITY.

The charter of the Leland Stanford Junior University provides for a university for both sexes, with colleges, schools, seminaries of learning, mechanical institutes, museums, galleries of art, and all other things necessary and appropriate to a university of high degree. The practice was adopted at the very first of carrying on the work in the applied sciences, mechanical engineering, civil engineering, etc., side by side with that in the pure sciences and humanities, and of fostering equally, as far as may be, all lines of work included in the plan of the university. To this end the technical departments of the university will not constitute a separate school, or series of schools, but will be brought into closest union with the departments of pure science and the humanities, and the regulations which govern one set of students will be in all respects applicable to the others. It is not intended to lay any stress whatever upon one group of subjects that is not laid on any or all others which are recognized as part of the scope of the university. No study will be favored because of its supposed practical usefulness, and no study will be favored because of its traditional relation to the curriculum. That is to say, each subject will have whatever place it is able to make for itself, and there will be no recognition of superiority on the part of the student of the ancient classics over the student in the technical schools, or over the student who may devote himself to studies in modern literature, pure science, or political and social affairs.

In the matter of entrance requirements it has been decided that the same entrance examination will admit the student to all departments of the university alike. In other words, the purpose of the examinations is to test the fitness of the candidate to enter upon college work, and not to test the degree of his competence to meet certain arbitrary or traditional requirements. The standard of admission is kept at the level attained by the best high and preparatory schools, but the largest liberty of substitution is permitted. Thorough preparation in science, modern languages, literature, or history is given the same value as thorough work in ancient languages or in mathematics, while superficial work in any subject will be rejected. The entrance requirements provide that the student shall be prepared in any ten of the following subjects, some of them involving one, two, or three years, according to the degree of advancement:

1. English.
2–3. Elementary Algebra.
4. Plane Geometry.
5. Solid Geometry and Trigonometry.
6. Advanced Algebra.
7. Physics.
8. Chemistry.
9. Physiology.
10. Botany.
11. Zoölogy.
12. Freehand Drawing.
13. American History.
14. English History.
15. Grecian and Roman History.
16. English Literature.
17. Spanish.
18–19. French.
20–21. German.
22–23. Latin.
24. Latin.
25–26. Greek.

In the arrangement of the courses of study two ideas are prominent: first, that every student who shall complete a course in the university must be thoroughly trained in some line of work. His education must have as its central axis an accurate and full knowledge of something. The second is that the degree to be received is wholly a subordinate matter, and that no student should be compelled to turn out of his way in order to secure it. In other words, no work in itself unprofitable to the individual should be required of him in order that he may secure a degree. This leads naturally to the discarding of the conventional college curriculum; for any curriculum that can be made up is calculated for the average student and not for any individual student, and every college curriculum implies a large amount of waste, either through taking unprofitable subjects or subjects which are undesirable for the culture of the individual student, or else through taking desirable subjects under unsatisfactory teachers. As I have said elsewhere, in a paper on the general education of the physician, there is a tremendous waste of the student's time unnecessarily involved in the old-fashioned prescribed courses of study, or in any course of study inflexibly prearranged. "This waste is threefold. The time spent on subjects in no wise concerned with the future studies of the student, thoughts which form no part of his culture; second, the time spent on subjects for which the student has no aptitude, from which he derives not the strength gained by mastery, but only the aversion felt for the unwelcome task; and third and greatest of all, the waste of subjects taught by dull teachers, dry, dreary, or mechanical, from whom the student received nothing, because there was nothing in them to give." "Those of us who have been through the prescribed course of the college have run the gauntlet of all these parasites on higher education. Only he who is familiar with the life of college boys can realize the great waste connected with work in wrong subjects under wrong teachers, and no one can estimate the number who have been repelled from the college by one or both of these influences. Many of those who remained to the end did so because their college lives were spent in the atmosphere of good-fellowship, not because they were attracted by their teachers or the work they were set to do."

In the arrangement adopted in the Leland Stanford Junior University the elective system is subjected to a single check. In order to prevent undue scattering, the student is required to select the work in general of some one professor as major subject or specialty, and to pursue this subject or line of subjects as far as the professor in charge may deem it wise or expedient. At the same time the professor in charge of the major subject becomes the student's official adviser. He is allowed certain authority in the prescription of studies to be pursued as minor subjects, and may thus complete or complement the work in the major subject which the student has chosen. This arrangement has an advantage over the elective system pure and simple, in requiring of every student such a degree of thoroughness in some one line that he becomes in some degree an authority in that direction. He has by this special work a base line, by which he is able to measure the attainments of others and his own attainments in other directions. By making the professor in charge of the major subject the official adviser of the student, the latter is enabled to secure the help which experience should give; and it is found, as a matter of fact, that the courses of study selected by students for themselves, the power of responsibility or self-direction being in their own hands, is better capable of defense than any prescribed curriculum which could be placed before such a student. The element of consent on the part of the student is regarded as of high importance in the development of scholarship, as that of self-direction is in the formation of character. It is better for the student that he should sometimes make mistakes than that throughout his course he should be arbitrarily directed by others. Each one of the different departments in the university has, therefore, its own course so far as major subjects are concerned, and the minor subjects required of each student are not arbitrarily joined to the major subjects, but can be varied indefinitely as the needs of the students demand.

In order that all courses and all departments may be placed on exactly the same level, the degree of Bachelor of Arts is given in all alike for the equivalent of the four years' course. Should the major subject, for instance, be Greek, then the title given is that of Bachelor of Arts in Greek: should the major subject be Chemistry, Bachelor of Arts in Chemistry, and so on.

It is the purpose of the university to treat all departments alike, to furnish the best instruction and the best appliances available for work in all, and to leave all questions of the relative value of studies to the student himself and to the adviser whom he has chosen. A single subject, English composition, is now required of all students in whatever course. The purpose of this is simply that the university may have some opportunity of testing the efficiency of the work in the lower schools, and those students who are found to be satisfactory in this respect are excused from any further work in the art of writing. This, and all other required work, is regarded as belonging to the lower schools, and all students who need such studies in the university are simply insufficiently prepared for the college work.

This arrangement of study is based on that in use in the University of Indiana, prepared in 1888 by the writer and his colleague at that time, Dr. H. C. G. Von Jagemann, now of Harvard University. It was based on an attempt to relieve the college of the prescribed curriculum and to put all departments on a common level, while retaining the element of the requirement of thorough work in some special line, which is the chief virtue of the conventional classical course. In this work the courses taken as a basis were those of Johns Hopkins University. This modification, however, was introduced,—that the minor subjects or collateral requirements should not be fixed, as for instance chemistry being made a collateral in the case of all students in biology, but that these collateral studies should vary with each individual student and should be arranged for him by the professor in charge of his specialty. This system has worked well in the University of Indiana for the last five years, and like every other form of the elective system its results in practice have been wholly satisfactory, whatever may be the theoretical fears which are professed as to the inability of students to make their own way through the courses of study offered in the university.[1] The average student finds a better course of study for his own development and his own purposes, than any consensus of educational philosophers can possibly make out before becoming acquainted with him.

DAVID S. JORDAN.

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PALO ALTO, CAL.

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[1] A statistical study of the results of this system is printed elsewhere in this issue.—[EDITORS OF THE EDUCATIONAL REVIEW.]

II.

THE TEACHING OF GEOGRAPHY.

WHAT TO AVOID IN TEACHING GEOGRAPHY.

The sub-title given to this paper expresses, as briefly as possible, the general considerations that I wish to present in contrast to those discussed in my first article.[1] The theme then was, in effect: What should the teacher know? The conviction that he should be informed far beyond the limits of his teaching was illustrated by bringing forward a number of specific examples of the kind of facts that I think every live teacher should have in mind. I shall now consider the opposite side of the question—What is unnecessary, or unimportant, or injurious in geographical teaching? The undesirable elements encountered to a greater or less degree in teaching geography, are divisible into superfluities and errors. I shall consider a number of these in order.

In my first paper, the chief emphasis was given to the importance of storing the teacher's mind with facts and explanations on the physical side of geography; not that other sides should be overlooked, but that I found space for illustration of only one division of the subject. It should now be repeated, as was then said, that knowledge of this kind is not to be discharged by the teacher in a flood, overwhelming the pupils before they can appreciate it; but that it should be presented only when called for, piecemeal, slowly, and chiefly in the way of illustrating or explaining subjects that are more directly pertinent to the usual routine of the study. It is perhaps not often that teachers of geography should be advised to husband their information; and yet I can believe that a well-taught beginner might over-task his class with an exuberance of illustration, making the geographical diet too rich for his pupils. An excess of precision is also to be avoided; minuteness of knowledge is not to be expected in children. Strong, broad descriptions are preferable, in which the chief elements of form, area, climate, resources, and population are linked together in a natural and effective way, and emphasized by illustration, whereby the essentials are easily remembered by pupils of ordinary ability. Over-zeal, leading to excess in quantity or precision, is characteristic of first efforts, when the facts of the subject have not taken positions proper to their relative importance. There is a want of perspective in such teaching; matters of detail are brought forward and confused with larger matters of much greater importance; but with practice this mistake disappears. It is not a mistake of the kind we are apt to suffer from; and I mention it chiefly because it might at first naturally follow from the acceptance of the advice already given, to the effect that teachers should be widely informed before beginning to teach.

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[1] EDUCATIONAL REVIEW, III: 417.

In contrast with this, I may mention a mistake of quite another kind, and probably the most serious of the difficulties that now afflict geography. This comes with teachers whose preparation is insufficient. They feel their weakness. They see necessity of strengthening their teaching, but not possessing the elements of strength in themselves, they try to borrow, and then too often add difficulty instead of value to their instruction. It is for this reason that there is so much useless memorizing in the study of geography. It must be very stupid work to both teacher and pupils. A teacher, well informed on the subjects introduced briefly in the text-book, would feel choked if he had no opportunity of bringing in appropriate side-illustrations and explanations. A teacher not well informed, has no sufficient fund of illustrations with which to refresh the tiresome facts of the page, and therefore they alone constitute the subject of his teaching. Too great stress is then necessarily laid on *verbatim* recitations, for there is nothing else with which to occupy the time. This is a sad difficulty, and it attends poor teaching in all subjects. I know of a case in which a teacher of history, feeling that his class was not doing work enough, required each student to memorize the names and dates of the Popes, in order to give more body to the class work—a poverty-stricken expedient. I have been told of another case in which a class in geology had to recite from Dana's *Manual of Geology*, word for word—a most shocking misuse of that excellent compendium. Is there, however, any subject in which this error is so common as in geography? It is not only the fault of the teachers. Many text-books are evidently prepared with the idea that every word is to be learned. How, except by rote, could a scholar make intelligent report of such a paragraph as this, extracted from a well-known English text-book of physical geography:

> The Danube receives a large number of tributaries, of which the most important are, on the right, the Isar, Inn, Raab, Drave, Save, Morave and and Isker. On the left are the Altmühl, Regen, Waag, Gran, Theiss, Temes, Aluta, Sereth and Pruth. Many of these are large streams with other important tributaries. The Danube drains upwards of 300,000 square miles of country.

Pages could be filled with quotations of that kind; yet to what do they lead? If it be conceived that anyone should ever wish to know facts so unimportant, let them be learned from the map, where they are more expressive than in a printed list. If it is important for the tributaries of all rivers to be stated outside of the maps, place them in tabular form, and utilize the space' thus gained by inserting something worth remembering about one or another of the examples; something that is not better presented in maps or tables. It is sad to think of children being perplexed with such stuff as is given in the above quotation; yet the book from which it is taken reached a fifth edition only twenty years ago.

It should be noticed that the correction of this error does not lie so much in the substitution of one text-book for another, as they are now constituted, but in the improved use of books by giving less attention to the unimportant paragraphs. This correction is in the hands of the teacher; he must, from his own knowledge, aided by wall maps and the school library, relieve the monotony of text-book teaching. If I should condense into the fewest words the intent of this part of my argument, they would be: "Avoid *verbatim* recitations; put something of life and nature into teaching."

Between the two extremes of superabundance and barrenness, a middle path must be selected by experience and good judgment. Facts that appear isolated must be bound together in their true relations; trivial matters must be lightly passed over; chapters of importance, in which the class finds difficulty, must be kept in hand and expounded till familiar. The best results of such a method can be gained only by a judgment so good and an experience so long, that nothing but the truly professional spirit of teaching, entered on as a life-work, will insure the improvement that we all desire and are striving for.

Lest some might misinterpret what I have just said, to mean that all memorizing of the facts of geography should be omitted, I must state explicitly that in geography, as in spelling, there seems to be no way of avoiding a large amount of memorizing, if the pupil is to have a sufficient fund of information with which to extend his own experience in later life. The labors of English spelling can be lightened by grouping words of similar derivation, as I used to learn them in my *Scholar's Companion*; but I cannot imagine any method by which the labor of learning to spell can be entirely done away with. So with geography; it is essential that every child should learn the names and positions of the larger geographical elements; but to learn them simply as recitations of words printed on the map is a fatal mistake. Several years must be included in the geographical course, during which the world has to be gone over and over, with more care and thoroughness at each repetition, before the familiarity that we all should have with it can be gained. This labor cannot be omitted; but it may be lightened by judicious illustration. Still, there is no royal road. I have no recipe by which all but the easy parts of the subject can be omitted and yet have the pupil well taught. Wide information on the part of the teacher and attentive effort on the part of the pupil, are essentials to success; but the labor thus thrown on both need not be dull and stupefying.

How shall the teacher know what need not be taught? What are the unessentials in the routine work of geographical teaching? We may learn something here by asking one another a series of questions that children may have to learn at school. The small value of some of the questions is not so well indicated by our having forgotten the answers, as by our not caring if we have forgotten. It is natural enough that many things learned at school should be forgotten afterward when the mind is occupied with other things. It must not be inferred that Latin and Greek should not be studied in school, because they are afterward forgotten; we are sorry enough if we cannot translate from the ancient languages when we meet them in words or passages. But this is not the case with the names of the branches of the Danube. Who cares whether he can at call repeat them in order? He may know that the Inn comes in from the Alps and the Theiss from the plains of Hungary; the others may be looked for on a map, if they are wanted. It is this indifference to the facts of routine geography that tells us of their small value. It is the easy recovery of them, when desired, that makes the memorizing of their names so useless. They appear clearly enough on the maps. Leave them there till wanted, and select from the many a few about which something more than a name can be given; not that name and incident both need to be learned by heart, but that the incident supplied by the teacher serves as a little barb to hold the fact in the memory. If the teacher, with all his preparation, has no incident or illustration pertinent to the facts, let them pass hardly noticed; if they are so unimportant that he knows nothing more than their name and place, as given on the map, and as anyone might know them, in spite of his having given time to careful preparation on the various sides of geographical study, then omit them and turn the attention of the class to something that he can tell more about. It may be that the choice of subjects made by the teacher will not always include the most important places and subjects;

but it should at least include the things he can best teach; and, as such, the things of the highest value to the class under his instruction.

The incidents, illustrations, and explanations to which I have repeatedly referred should be introduced not only to help the pupil's memory, but also to increase the reality of the subjects that are studied. Take care that the names learned from the text or the map represent places and things, and not words or lines. We have all heard of the man who confessed that his chief recollection of Austria was as a red patch on the map hanging on his schoolroom wall. Last summer I heard of a similar example. A little boy was watching his aunt draw and color a map of the United States; when Ohio was reached and a blue tint given to it the boy exclaimed, "Ohio is not blue; it is green." Emphasis in his teaching had been given to the unrealities of geography.

There is now less reason than existed formerly for urging the postponement of astronomical and mathematical geography till the later years of study. Teachers are pretty well agreed that a beginning must not be made on the unseen, but on the visible facts and forms of the school district. Still, even young pupils may at an early age become familiar with the earth as a globe, with the idea of passing over its great rotundity and reaching one land after another. It is not this so much as the ideas of poles and equator, latitude and longitude, that may well be delayed till the general distribution of lands and oceans is learned. The seasons, the noon altitude of the sun, the varying length of the day and night, are subjects that can be best taught by observation. Let the members of the class be required to contribute records for a school journal, to be kept continuously for a number of years. Let them thus accumulate facts from which they may discover for themselves the dates of high and low sun, of long and short days. Do not rob them of the opportunity of discovering simple correlations, as open as these are to elementary investigation. Let them study out the phases of the moon. From the records thus obtained, ask a class if they can tell how much farther away the sun is than the moon. If the school is on tide-water, let it be the duty of the members of the class in rotation to detect the time and height of high and low water, and correlate these changes with the movements of the moon and sun. Let them thus learn the important lesson that the world is wide open to their individual study, and that great reward follows the attentive use of their opportunities. The quantity of facts secured may be in the end less that those recited in a few days, parrot fashion, from an unmeaning page; but the quality of the facts learned by individual observation more than makes up for their lessened quantity.

Directly in connection with the above, is the suggestion that technical terms should be delayed until the ideas that they represent have become familiar from observation or description. Leave definitions, which always represent generalizations, until the mind is familiar with the facts that call for comparison and definition. Avoid the appeal to authority as justification for any statement, unless good reason goes with it. Do not often introduce personal authority in elementary teaching. For example, do not say, "In Ganot's treatise on physics, as edited by Professor Atkinson, the following remarks are made on this head;" or "Mr. R. H. Scott gives the following statements from Mohn's treatise." All these names are excellent sources for quotation; but young pupils should not be troubled by the interruption of the ideas that such sentences cause. This appeal to authority tends to subordinate exactly the spirit of rational independence that should be encouraged. If the statements that are to be quoted are not self-explanatory, their explanation, but not their authors, should be given.

Avoid hobbies. Do not be too methodical, too logical. Do not try to compress the variety of nature into rigid and artificial concepts, types, and diagrams. Generalization is, of course, an important aid in expressing the recurrence of a series of similar phenomena; but when it becomes more complicated than the phenomena themselves, it is of no value. For example: "Land may rise from and above the river bed; then there will be two slopes within the two slopes which form the river basin, and, consequently, there will be two lines which bound the two slopes that rise above the river bed." It is hardly worth while to go roundabout so far in order to say that rivers may include islands between their banks! An excess of logical demonstration of elementary matters will not infrequently leave the teacher behind the class. Children do not care much for argument, but prefer acquisition, and are willing enough to accept anything within reason. Vivid description and appropriate explanations need no enforcement by a constructed and visibly logical method.

Be careful of hasty generalizations. While the smaller continents possess simple slopes from their mountain axes to the sea, the largest of the land areas contains so great an interior basin that it should not be overlooked even in the most elementary presentation of continental form. Do not jump too rapidly to conclusions. For example, it is not safe to say, "The lack of long and broad slopes is the plain reason why Africa remains for the greater part in barbarism." Do not over-emphasize trifles. Leave to rival book agents the trivial dispute about the particular lakelet in which the Mississippi rises. The general plan of a book is a thousand times more important than its citation of the latest census reports. Grasp and teach the spirit, not the letter.

I shall add but a few paragraphs on geographical errors. Most of these are found in the divisions of geography that are concerned with explanation of phenomena; that is, in meteorology and oceanography. In these subjects, the text-books are nearly always behind the times.

The tides are too difficult to introduce into early teaching, except in a descriptive way. The usual account of the tide opposite the moon is nearly always defective. A case may be quoted in which an author rather incredulously says: "There is a great pulsation of the entire ocean, called the tides, which is supposed to be the yielding of the water of the globe to the attraction of the moon on the side nearest the moon, and the holding back of the land from the water, on the side farthest from the moon;" and then adds naïvely in a footnote: "This explanation has never seemed quite clear to me in presenting it to children, and it seems to me possible that science has not yet fully explained the tides." It is useless to attempt to explain the tides without at least an elementary knowledge of mechanics. They may be described and good reasons discovered for referring their rise and fall to the joint action of the moon and sun; but their explanation had better be omitted than travestied.

The winds are seldom adequately treated in the ordinary text-books. It is generally said that the air around the equator is heated and rises; then the colder air on either side rushes in to fill the vacuum thus formed. This is as if one should say a lever rises under a weight to fill the vacuum caused by the ascent of the weight. The general circulation of the atmosphere is referred to the differences of temperature between the equator and poles; and on this basis, a tyro in physics will predict the occurrence of low pressure around the equator and high pressure about the poles; yet in the charts of atmospheric pressure often introduced into the recent books on physical geography, the pressure around the poles is found to be low and not high. Any independent pupil would be justified in rejecting a theory which was apparently so soon discountenanced by the facts.

Rain is nearly always wrongly explained. It is referred to the mixture of two masses of air, both saturated with vapor, but of unlike temperatures; an inadequate and extremely unlikely process. It is referred to the cooling of ascending currents of warm lower moist air by the cold of the upper regions, or by the cold of the mountains on their path; but the main cause—the spontaneous cooling by expansion of ascending currents—is either half-mentioned or altogether omitted. The easy belief in the artificial production of rainfall by explosions naturally follows from the imperfect teaching of this subject.

The influence of the earth's rotation on the course of the winds, the ocean currents, and rivers is hardly ever properly presented. There is always either the implication or the direct assertion that bodies moving east or west are not deflected from their course, and that the turning to the right or left, in one hemisphere or the other, is found only in motions along the meridian. This is all wrong. The deflective effect of the earth's rotation is independent of the direction of motion. It is as great on a motion to the east or west as to the north or south. It is least near the equator, where it is generally referred to; and greatest near the poles, where its action is seldom mentioned. The usual reference to the lagging of the trade-winds, as they move toward the equator and reach latitudes of faster eastward rotation, would, if logically carried out, warrant the belief that friction with the earth's surface prevents the lagging of the winds, and that their oblique course must be accounted for independently of the earth's rotation. The reader may, if he wishes, see the disastrous consequences of this argument in Laughton's *Physical Geography of the Winds and Currents*, an English work of good standing; but one in which this particular subject is topsy-turvy.

How shall the earnest teacher avoid such errors and superfluities as I have mentioned? There is only one way, and that is to study and think untiringly. It is indeed unfortunate that a simpler prescription cannot be given to overcome the difficulty that many a teacher would be gladly be rid of. Something will be done by the introduction of better and better text-books and works of reference; more will be done if school boards can be prevailed upon to give teachers sufficient leisure to consider and plan out their heavy tasks. But the burden of the work of improvement lies with teachers themselves.

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III.

VALUES IN THE EDUCATION OF THE DEAF.

A child born deaf remains, unless especially trained and instructed, wholly ignorant of verbal language. This verbal language, which comes in vocal sounds to the normal child through his faculty of hearing, reaches the deaf child only through his vision, and always in silent signs and characters—whether these be movements of the hand, which are called gestures, or of the mouth, which may be termed articulations, or are forms and pictures on the printed or written page.

It is impossible for one born deaf, or one who has become totally deaf in early childhood, ever to gain an adequate apprehension of speech, as this human faculty is used and enjoyed by normal persons. To the deaf, no matter how adept they may become in understanding the import of speech, by observing closely the oral and facial movements of those who speak, oral utterance must ever lack the life-giving quality of sound with all its attendant effects of eloquence, pathos, sympathy, sternness, persuasiveness, humor, and the like. And yet, strange as it may seem, this truth, so easily seen to be evident, was not only ignored by the man who stands in history as the founder of oral teaching for the deaf, but the preposterous claims were made by him that in mental development (1) "the defect of hearing cannot be supplied by the medium of vision," and (2) "abstract ideas cannot be infused into the minds of the deaf and dumb by any process of writing or with the assistance of methodical signs."

Samuel Heinicke (1729—1790) began teaching the deaf in Dresden in 1755. His bald errors, on which he based his claims that the education of the deaf could *only* be effected through the aid of speech, he acknowledged later, and renounced. None of his many admirers and disciples have ever ventured to sustain the false principles with which he started out, and yet the spirit of those errors seems to have remained among those who advocate the oral method exclusively; for it is not unusual for them to make such assertions as these: the deaf can learn to use speech as hearing people do; all the deaf can be taught to speak; only through the teaching of speech may the deaf be restored to society; by employing the oral method, the disability of deafness may be practically removed. None of these statements expresses the whole truth. They are at most nothing more than half-truths, more pernicious in their effect than untruths, because more easily misleading.

During the same year in which Heinicke began his work as an oral teacher of the deaf, the Abbé de l'Epée (1712–1789), of deserved renown as a philanthropist and as the founder of the manual method, established a school at Paris in which there were soon gathered a considerable number of deaf children. The methods of De l'Epée were based on a principle diametrically opposed to that with which Heinicke started out. De l'Epée adopted the principle that written characters and ideas may be connected together without the intervention of sounds, as in hieroglyphics; that if sounds are not essential to render written characters intelligible, no more are they to explain gestures or signs.

The limits of this article will not allow any extended description of the methods pursued by the founders of deaf-mute education in Germany and France. It can only be said that while Heinicke made oral teaching, which is always artificial and painfully difficult at the beginning, his *point d'appui*, using pantomime gestures only to a very limited extent, and in a crude form, because no effort was made to improve and perfect them, De l'Epée found a much broader and much more secure footing, in a means of communication at once natural and encouraging—that language which he took in a double sense from the hand of the deaf-mute himself; and he added, as the work of instruction went on, such oral teaching as seemed desirable and practicable.

The German, serving a false philosophy and striving against nature, sought to build an inverted pyramid, which, as will be shown, has always stood insecurely and liable to fall; while the Frenchman, true to sound science and working with nature, has reared a structure certain to endure because of the depth and breadth and strength of its foundations.

In 1760, Thomas Braidwood (d. 1806), of a distinguished Scotch family, began the teaching of deaf-mutes in Edinburgh. His school attained great celebrity, drawing to it pupils not only from all parts of the United Kingdom, but from the American Colonies. Dr. Johnson, in his *Journey to the Hebrides*, speaks of Braidwood's success with his pupils in terms of glowing admiration, and gives an extended and interesting account of a visit to his school. Braidwood taught many deaf-mutes to speak well, and made a greater use of manual methods than Heinicke; but he fell far short of De l'Epée in his development of the language of gestures.

De l'Epée, Heinicke, and Braidwood will hold places in history as *facile princeps*, each in his respective country, in the humane work of the general education of the deaf. But the charitable Abbé was the only true philanthropist. His methods were open to the world. He not only declined to enrich himself, even from such of his pupils as were wealthy, but gave his own private fortune to the cause which commanded his heart.

The history of the work of Braidwood in behalf of the deaf of Great Britain and Ireland is full of evidences of a mercenary spirit. From the first it was made a family monopoly. Large sums were demanded for a knowledge of the art, and the few to whom it was taught, outside the family, were placed under bonds so heavy as to be practically restrictive, not to teach others. As late as in 1815, when Dr. Thomas Hopkins Gallaudet, the founder of deaf-mute education in America, was seeking to prepare himself, in Europe, for his work, the narrow and self-seeking policy of the Braidwoods closed the doors of every school in Scotland and England against him and compelled him, after the loss of many months of valuable time, to seek in France the instruction he needed. The monopoly of teaching the deaf continued in the Braidwood family for fifty-nine years, during which period only three institutions of a public character, for the deaf, were established in Great Britain, while, within twelve years after the expiration of the restrictive bonds, eight new schools sprang into existence, two in Scotland, two in Ireland, and four in England.

The merits of the two principal methods, the manual and the oral, have been earnestly pressed by their respective advocates from the earliest times down to a very late day, and controversies over them, always warm and sometimes bitter, as was the case with Heinicke and De l'Epée, have recurred with varying frequency. So long as the question was which of the two should prevail to the exclusion of the other, small progress was made toward a settlement. But within a few years a conciliation and combination of methods have been shown to be both practicable and desirable, and it is in the union of elements, once thought to be necessarily antagonistic, that a careful consideration of "values" in the education of the deaf becomes important.

Professor Fay, of the National Deaf-Mute College, editor of the *American Annals of the Deaf*, defines the two methods as follows:[1] "In the manual method, the sign language, the manual alphabet, and writing are the chief means used in the instruction of the pupils, and the principal objects aimed at are mental development and facility in the use and comprehension of written language. The degree of relative importance given to these three means varies in different schools; but it is a difference only in degree, and the end aimed at is the same in all."

"In the oral method articulation and speech, reading, together with type-writing, are made the chief means of instruction, and facility in articulation and speech-reading, as well as mental development and written language, is aimed at. Signs are used as little as possible, and the manual alphabet is generally discarded altogether."

The single objection to the exclusive practice of the manual method is that under it no provision is made for the teaching of articulation and speech-reading to that very considerable proportion of the whole number of the deaf who are indisputably capable of in these very valuable acquirements. This objection is a serious one, and yet it is true that under the manual method, with oral teaching entirely omitted, the intellectual, moral, and religious training of the whole body of the deaf can be effected much more easily than under the oral method. Industrial teaching can be readily given, and the children, as sent out from the schools, are capable, with very few exceptions, of supporting themselves and of living happily and reputably in the communities to which they are returned, even though they are limited, in their communication with the hearing, to writing, signs, and the manual alphabet. The lack of speech is an inconvenience, but by no means an insuperable barrier to success in business or the attainment of happiness.

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[1] *American Annals of the Deaf*, January, 1891.

The objections to the exclusive practice of the oral method are more numerous and radical. First, and most serious of all, is the fact that with a large number of the deaf it utterly fails; that with another very considerable portion a degree of success is attained so limited as to be little better than failure; that it can be said to really succeed with not more than one-third of the whole number demanding education.

But it is not alone because it must necessarily fail with a majority of the deaf that the oral method is open to criticism. Although, as is intimated in Professor Fay's definition, signs are used to a limited extent in some oral schools, the tendency in the practice of the oral method during the last few years has been toward the entire abandonment of the language of gestures. Teachers in oral schools are not required to have a knowledge of signs—indeed, it has usually been preferred that they should know nothing of the natural language of the deaf, in the mistaken belief that the ability to understand and use it would impair their efficiency as teachers of speech. No better exponent of these sign-abolitionists can be found than Arnold, recently deceased, the director for many years of the institution at Riehen, near Basle, who says: "As long as signs are found to exist in schools for the deaf, so long the entire cause of deaf-mute education will suffer with a cancer which will sap the marrow of oral instruction."

This disposition on the part of the oralists of recent date to undervalue and reject the sign language demands more than a passing notice. I say oralists of recent date, because the testimony and practice of some of the ablest teachers of the earlier days, men unsurpassed, by their successors in learning and ability, was strongly in favor of the use of gestures, even in schools where the aim was to impart speech to the greatest possible number.

Much more testimony could be given from the older teachers of the deaf in Germany, the birthplace and stronghold of the oral method, in favor of the use of the language of signs, and against the policy of the pure oralists of to-day, who in this country, as well as in some parts of Europe, advocate the suppression of signs altogether.

The claim has been made by the promoters of the pure oral method, that in recent years great improvements have been made in Germany and elsewhere, leading to much more satisfactory results. But this is denied in many quarters, and in the publications of Mr. J. Heidsiek, an instructor of experience, now living at Breslau, much is said to prove the unsatisfactory character of a great deal of the oral teaching going on at present in Germany. In a personal letter received a few months since, Mr. Heidsiek, referring to a visit I made to Germany in 1867, says: "I assure you, if you should take the same journey again, your judgment as to methods would be exactly as before. The deaf-mute institutions would present themselves to you in greater numbers and in more elegant garb, but in the method of instruction you would scarcely discover a difference or progress worthy of mention. The results of the German method rest for the most part on appearances. It makes an overpowering impression on the layman when he hears from the mouth of the deaf mute a few intelligible words; but of what use is this artificial work to the life of one deprived of hearing if he is without the most scanty knowledge, and is not also able to make himself understood in the least in writing? The German school at present lays the whole stress upon articulation; with unspeakable tortures the effort is made to force the deaf to speak in pleasant tones, and to read from the lips what is spoken; and in this scarcely any progress is noticeable. Out of a hundred deaf mutes there are not five who could take part in a conversation with hearing people, whose speech could be understood, and who would be able to read from the lips with accuracy."

But the discussion of this topic would be very incomplete were no mention made of the opinions of manual teachers. Indeed, they are the only fully competent witnesses in the case as to the value of gesture language, for they alone, by the admission of their German brethren, among whom the sign-language, as acknowledged by one of the most eminent, is "limited to hap-hazard culture"—they alone know what the language is in its full development; they alone have taken pains to master it, and to acquire a faculty in its use equal to that enjoyed by the deaf themselves.

Dr. Gallaudet, in his last official report as principal of the school he founded at Hartford, a report made in 1830 after fourteen years' experience of practical teaching, discusses the importance of the early establishment of a full and free means of communication between teacher and pupil. Convinced that this cannot be found in any form of *words*, whether spoken or written, for a very long time after the pupil has entered school, he turns to gestures as affording a means of communicating thought at once natural, even spontaneous, to the deaf child, and easy of acquisition and devolopment by the teacher. He announces the principle on which the method pursued in his school is based to be the elevation, to as high a degree of excellence as possible, of the natural language of signs employed by the deaf and dumb, so as to make this language itself a complete medium of communication between instructor and pupil on all subjects.

Some years later Dr. Gallaudet published his views on the

"Value of the Language of Signs in the Education of the Deaf," in a series of articles contributed to the *American Annals of the Deaf*, vol. I., Nos. 1 and 2, 1847, which are commended to those wishing to pursue the subject.

Not a few young deaf persons have come under my observation, whose education was begun and continued for several years in oral schools in which the use of the language of signs was forbidden, but who had opportunities later of acquiring and using it. These persons have assured me that the knowledge of this language, and freedom in using it, gave their mental life a new phase of activity and growth as delightful and helpful as it was surprising. They looked back with bitter regret to their early school-life, from which, with a mistaken and ignorant kindness amounting to cruelty, that element had been stricken out, which Hill, one of the most eminent German oralists, accepts and uses as "the one in which the mental life of the deaf mute begins to germinate and grow; the *only* means whereby he, on his admission to the school, may express his thoughts, feelings, and wishes."

It would be interesting, did the limits of this article permit, to show the similarity between the Chinese language and that of gestures, as suggested by certain writings of the eminent missionary among the Chinese, Dr. Morrison, and to refer at some length to a remarkable treatise by the great French philosopher, Condillac, on the language of action, which, he argues, was man's first means of communicating thought. Equally interesting would it be to cite the opinions of Tylor, the well-known English writer, on the development of civilization; of Valade, the accomplished French instructor of the deaf; and of De Haerne, the learned Belgian statesman, lately deceased, who wrote ably on the natural language of signs; of still greater interest, in certain points of view, to consider the scholarly writings of Colonel Garrick Mallery, of the National Bureau of Anthropology, on the language of signs as developed among the American Indians—essays which have always commanded the admiration of instructors of the deaf.

The best results in the education of the deaf can be obtained, not by the exclusive practice of either the manual or the oral method, but by making use of both, in such combinations as may be most practicable, and adding aural teaching for such children as possess a degree of hearing sufficient to comprehend articulate sounds.

There are in the United States and Canada at the present time eighty-four schools for the deaf, in which 9652 pupils are receiving instruction. Of these schools thirteen, having 402 pupils, are conducted on the manual method; nineteen, containing 1104 pupils, follow the oral method, while fifty-two, containing 8146 pupils, are conducted under the combined system. Considering that this system prevails in sixty-two per cent. of the schools, containing eighty-five per cent. of the pupils now under instruction, it may justly be called, as it often is in Europe, the American system.

In effecting the combination of methods under this system, circumstances suggest, and often compel, differences of detail. The most satisfactory arrangements are possible in large schools, where each method may find its proper subjects in sufficient number for advantageous classification. No more favorable conjunction of elements in a single establishment could possibly occur than exists at present in the Pennsylvania Institution at Philadelphia, the second in point of numbers, and third in age, in the country. With its 500 pupils, and a corps of officers and teachers unsurpassed in ability, experience, and skill, this school will in a few months be removed from crowded buildings in the heart of the city to a fine estate of sixty acres in the suburbs, where, at a cost of nearly a million of dollars, a commodious and beautiful group of buildings has been erected, in which a division of the pupils into primary, intermediate, and advanced departments will be made, with an oral school quite distinct from all the rest. Industrial teaching will be provided for, as also special physical culture in a large gymnasium. Under a management at once progressive but cautious and severely practical, each method will be given its full opportunity; the sign-language will be accorded the position and respect it deserves, but will at the same time be used with judgment, and the half successes in articulation will be promptly transferred to that department in which they can be more advantageously trained.

In this model school the combined system will exist in a form worthy to be imitated wherever the numbers under one management are sufficiently large to warrant similar divisions into departments. In smaller institutions, or in those of large size where buildings already erected do not admit of the adoption of the Pennsylvania plan, the combined system may be, and is in many well-ordered schools, operated with results far more satisfactory than is possible in a school wedded to a single method.

Among the nineteen in which the oral method prevails, and in which the sign-language is unwisely prohibited, there are those in which earnest, faithful, intelligent work is done, and where the results in many individual cases are most commendable, sometimes even brilliant. But many children are retained in them that never succeed in speech, and who would derive far greater advantage under the manual method. In all these oral schools the sign-language, in spite of rules against its use, is a constant means of communication among the pupils.

The marked success attending the operation of the combined system in this country has attracted attention in Europe, and when, a few years since, a Royal Commission was appointed in England to inquire into methods of educating the deaf and other special classes, witnesses were summoned from this country to furnish full information to the commission as to the workings of our American schools. The advantages of the oral method and the combined system were presented by competent witnesses, and their testimony was published along with the report of the commission. The managers of a new school about to be established at Preston, England, made a careful study of this testimony, and were influenced by it to adopt the American combined system, in spite of conditional offers of considerable sums of money from promoters of the oral method in England. I am satisfied that the policy of the managers of this English school would be generally followed in the organization of new schools for the deaf, if those who have the responsibility of their establishment would study the subject of methods as intelligently and as impartially as it was considered at Preston. And I am equally convinced the day is not distant when the combined system, broader than any method, because including all, will be accepted even in the country of Heinicke, where the narrowness and insufficiency of his method are shown by such a vigorous writer and so unimpeachable a witness as Heidsiek.

To sum up the "values" in the education of the deaf, it may be said: (1) that the language of gesture should never be banished from any school; (2) that all who undertake to teach or train the deaf should master this language; (3) that, at the same time, gesture language should be regarded as a means, never as an end; (4) that a careful and prolonged effort should be made to teach every child to speak; (5) that the education of everyone found capable of acquiring speech should be so conducted as to promote facility in speech to the highest degree possible, without sacrificing those other objects of education which are admittedly of more consequence than speech; (6) that every child found incapable of success in speech should be taught by the manual method; (7) that moral training should be carefully attended to, and that religious instruction of an undenominational character should be afforded; (8) that industrial and physical training should have prominent places; (9) that artistic ability should be carefully fostered and encouraged; (10) that wherever sufficient hearing remains to distinguish articulate sounds, pains should be taken to train and develop this faculty, so that, if possible, it may become a channel of intelligent communication, and (11) last, but by no means of least importance, that all teachers of the deaf should be highly educated persons, carefully trained for their profession, and should possess in no small measure that disposition which "is not easily provoked," which "seeketh not her own," but "endureth all things" and "is kind."

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IV.

NOTES ON EDUCATIONAL METHOD

I

In education, effective methods are necessarily based upon rational principles and not upon empirical laws. The reason is obvious. Experience comes too late. Instruction must be individual. The opportunity for application passes with each acquisition of experience, leaving behind it only the shell of wisdom. It is necessary, therefore, to consider where the constants of pedagogy, the rational principles underlying educational practice, are to be sought.

I assume, of course, that mere mechanical application of formulas is recognized as hostile to organic growth of the school system. The formalism that occasionally obtains cannot exist for a long time in the same place. It restrains and galls until it is forcibly thrown off, or until the organism is destroyed. Evidently, no principles of education, no laws of development would be found in a thing that does not develop. If we could study microscopically and quantitatively the minds of a few progressive and successful teachers, we should doubtless find suggestions of great value. Although this is practically impossible, there is something very like it that is quite within the power of any honest and persistent young teacher. To study other minds is much more difficult than to investigate one's own mind. I therefore suggest that the teacher's own consciousness is worth some consideration in a search for fundamental principles of education.

If one has no taste for introspection, either a taste must be developed or a substitute must be found. A substitute which is pretty certain to develop a taste would be very desirable in such cases. The beginner in introspective investigation meets at the threshold the great obstacle to even the trained thinker. A thought is transitory. A state of mind is unstable at best, while if attention be directed to its nature there is added an important factor. To the untrained mind this peculiar difficulty is so discouraging that few pass the novice's stage. Can we introduce the process of self-investigation in a simple form, by means of which one may receive preparatory training without encountering discouragements incident upon the sudden and complete removal of all familiar landmarks? I shall suggest a few preliminary operations that have been helpful, and that will not over-awe anyone.

1. Keep a record of the rate of your pulse for a few weeks. Take your own pulse regularly several times a day at given hours, as nearly as possible under the same conditions; for example, just before rising, then at nine o'clock, twelve, one, six, seven, and just before retiring. Of course, the record for each hour must be kept separate. At first it will be necessary to count the beats for a minute, or even for two minutes. Practice will ordinarily enable one to obtain sufficient accuracy in one half-minute. Do not compare the record of one day with that of another until you have at least one hundred cases. Tabulate the results, and observe how regular is the variation during each day. Other rhythms and various irregularities may be discovered and accounted for if the record be continued a few months. Comparison with the results obtained by others will show certain general resemblances and many personal differences.

2. With the aid of a friend to strike the keys, practice fifteen minutes each day for a few weeks, guessing which key of a piano has been struck. Write down the correct key, and your guess. After a few hundred answers have been obtained, tabulate by octaves so as to show the number of correct guesses in each octave, the number estimated one note higher, the number one note lower, two notes higher, etc. Notice the extreme variation, the limits that include one-half the answers, and the number of correct guesses. Compare your results with those of other observers, and note the effects of natural gifts and of training. Observe the effect of pitch and of practice.

3. Procure a dozen bullets. Have a friend drop from three to twelve rapidly and evenly upon a piece of wood or metal (I use a small trough), so that each bullet makes but one clear sound, then falls upon a cloth (sofa). Make fifty trials per day for a week. Record each time the number dropped, and your guess. Observe regularity or irregularity of the decrease of correctness with increase of number, the limit of absolute certainty, and the effect of practice.

Request your friend to hold in a closed hand a number of bullets. With your eyes on the hand, let him open and close it as soon as possible. Guess the number of bullets. Continue this process, recording results as in case of hearing. Tabulate answers, and note same points as above. Compare final results of eye and ear judgments obtained in this manner.

A little ingenuity will devise many other experiments of a similar nature. In carrying them on and in studying their results one cannot avoid introspection.

These simple experiments are well worth a few hours' time, not because one's personal peculiarity is important, but because the experience is sure to suggest a difference between things as they are and things as they seem. The inquirer *must* investigate the causes of so startling an idiosyncrasy. Such experiments will be of greater assistance in beginning and continuing self-study, than an entire text-book of definitions and classifications of words. Any teacher, interested enough to follow the directions already given, will have aroused enough scientific curiosity to wish to know what results others get in these and in more complicated experiments. The teacher will then become an investigator, and will be interested in the investigations of others. If there is a germ of introspective talent in such a teacher, this environment of aroused curiosity and practice in objective measurement of changes in his own consciousness ought to favor its development. If no germ is present, who will suggest a better substitute for introspection than an exact and purely objective and quantitative measurement of psychical phenomena, to which the transition is easy from the simple experiments above mentioned? So important is the introspective power that I consider its cultivation a fundamental principle of educational method.

II.

The second principle of method is the accurate, and, as far as possible, exhaustive knowledge of the subject to be taught. On this point nothing need be said. My third principle of method is the complete realization of the truth contained in the opening sentence of Froebel's *Education of Man:* "In all things there lives and reigns an eternal law." Belief in this truth is now general among intelligent people. The practical application of the law is, however, seldom to be found.

The teacher is concerned with the manifestations of life and not with its ultimate principle, which is, of course, inherited and unteachable. It is the material vehicle of life, and its mental and physical products, that the teacher is to operate upon. It will be profitable, therefore, for us to study life as it is known to the scientific world. Child-nature is the most fruitful field in pedagogy. Its study is the most practicable means of developing an individual method that will fit the teacher and not chafe any pupil. No person can make all the necessary observations. There must be created a common stock of knowledge on childhood and its development.

The evolution of men and women from children is already receiving considerable attention. It is not enough to note that, on the average, children ten years of age are larger than children eight years old. If the question is one of size and age, we must know how much larger and what proportion are larger. If the question relates to color-blindness, we must know not only that a certain percentage are generally color-blind, but also which children in our school are defective in color vision, and whether practice in colors will in any degree relieve them. If the subject is nervousness, it is not sufficient to know that many children are somewhat nervous. We must know how to recognize the most common forms of nervous disease, and we must know in what manner a teacher may aid in their relief. The habit of close observation, and the careful study of the development and nature of children, will soon put the teacher in possession of some valuable guiding principles.

Children usually enter school at six years of age. They "don't know much," it is true. But are we justified in considering them very simple beings? Is not the practice of so considering them an error of our system? Ought we to take this being as the unit and to reckon all progress on this basis? May not this practice be a cause of indefiniteness in our methods, of crudeness in our appreciation, of stiffness in our adaptation? Insight founded on such a basis seems to me like weighing diamonds on hay scales, or like measuring temperance by the number of times one has not been drunk. Compared with a Huxley, such a child is doubtless very simple. Compared with a child one year old, he would appear relatively complex. As a working hypothesis, in our study of children, we may do well to accept the general principle of evolution. At least we must recognize it in the entire life-history of a single individual.

Would it not be very helpful if teachers should study the development of children from birth to school age? The study of older children is already advancing at a remarkable pace. Is there a profitable field for investigation in the pre-scholastic period of the child's life? If our evolution of method is to have vitality there can be no more promising germ than the previous history of the organism. On entering school, children are very much less alike than they are at birth. When they are most alike seems to be the best time to begin the earnest study of their nature. The literature of this early period in human life is rapidly increasing. It is, of course, very valuable, but like all book-knowledge, it must be supplemented by individual personal intercourse with numerous "specimens." Most mothers are not averse to having their infants observed or even wisely experimented with. Abundant material for such investigation is easily accessible.

The teacher cannot risk beginning the study of so wonderful and so complex a being as a child at any later period than its birth. An indispensable preparation for this study, or, at least, for its adequate appreciation, is a knowledge of the general facts of embryology. For one entirely unacquainted with the conditions and leading phases of pre-natal life, it is nearly impossible to understand the nature of a child at birth. It is, then, particularly fortunate for the ambitious teacher that embryology is becoming popular enough to warrant the publication of its general principles in many medical and physiological works. Scarcely any one of these compendiums is sufficient for a satisfactory insight into pre-natal life, but most of them are suggestive, and a careful study of several will usually lead to the perusal of some special work on the subject.

It is a melancholy fact that to-day teachers' methods and ideas are based upon the older theories of evolution. The physical and mental activities of the child are simply to be unfolded. Is it not time for the educational world generally to adopt the theory of epigenesis? May we not learn that the mind follows the same law as the body in its development? We have already learned from Wolff's discovery that all organs and parts of the animal are outgrowths or modifications of pre-existing organs or parts. Function and organ are too closely connected to be controlled by different laws. It ought to be clear, then, that epigenesis is as true in psychology as in embryology. Advanced psychologists have practically taught this doctrine for some time, but the applied psychologists, especially the great mass of teachers, are working on the "unfoldment" principle. If a thing will not unfold, we may, perhaps, lay hold of it and unfold it. But if a thing will not develop, there is nothing to do except to improve the environment and to furnish a motive.

The philosophy of method consists not in knowing the laws of evolution or the order of the appearance of the faculties of the mind, but in assimilating and in appreciating the fact that the individual does develop by innate forces and in contact with an external environment. The innate forces cannot be changed at the will of the teacher. He is limited to the partial control of the environment. The complete recognition of this fact is doubtless the cause of much skepticism concerning the possibility of a science of education. Such skepticism is certainly justifiable if science is restricted to the abstract or symbolic form. It is scarcely conceivable that education could ever be carried on as a problem in algebra is solved, without knowing the value of x, y, and z until the process is completed. But if John Stuart Mill was right in affirming the possibility of a science of human character, then a science of education is possible. If it is possible to know the individual approximately, and to estimate the effect of various influences upon him, then an approximate science of education already exists.

The few general principles that underlie the evolution of all individuals are most easily determined by making comparisons at that stage of their lives when they are most alike. In the ovum all individuals are alike. Segmentation and differentiation of cells make known the fundamental law of organic development. "The tendency to individuation" is thus seen to be the aim of every part of the organism and of every organism. To be different from others is the unconscious ideal of every being. A conscious ideal is often substituted for this native longing, and it cannot be maintained that such substitution is valueless. I only emphasize the fact that there is a natural, unconscious tendency to become different.

My conviction is that those who believe in the study of human nature, and especially in the study of child nature, as the foundation of pedagogy, will not be satisfied to begin with the child of school age or even with the new-born babe, but will be forced by their scientific interest to devote considerable time to the fundamental principles of embryology.

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V

PUBLIC SCHOOL PIONEERING

A REPLY

> "As most of the council were but little skilled in the mystery of combining pot-hooks and hangers, they determined most judiciously not to puzzle either themselves or posterity with voluminous records."—*Knickerbocker's History of New York.*

In the April number of the EDUCATIONAL REVIEW Mr. Andrew S. Draper signalizes his universally regretted retirement from the professional supervision of the schools of New York by an attempt to prove that the educational history of Massachusetts, as it has been written, is chiefly mythical. A less able and fearless man might have shrunk from the task, but, as everyone knows, Mr. Draper has the courage of his convictions, possibly beyond them.

Whatever honor there may be in "pioneering," he affirms, belongs to New York, and he laments that scarcity of records and the innate modesty of her people have so long obscured her glory. A modern Van Tromp, flying Dutch colors and with broom nailed to his masthead, he sails exultantly over all the Massachusetts seas, and returns in triumph to hear the plaudits of the Bowery and the responsive echoes of the Dunderberg, and to anchor at last in peace in the Tappan Zee.

Having been the innocent occasion of this Quixotic exploit, I am allowed by the courtesy of the editors of the REVIEW a few pages in which to reconsider the educational history of New York and Massachusetts.

Mr. Draper's contention is that the American public school system had its origin in Holland, was transplanted thence to New Netherlands, and from there spread throughout the United States. This necessitates a denial of all that has been claimed for Massachusetts, culminating in the broad assertion that Massachusetts had no public schools of any consequence before the Revolution. Had he gone a step farther and denied the existence of Massachusetts altogether, he would have done no more violence to history, and would have saved himself the trouble of writing his paper.

To account for the educational superiority of New York over Boston, he contrasts the mother countries from which the settlers respectively came. Holland, he tells us, was a land of liberty, where free schooling was provided for all classes of people—a land flowing with educational milk and honey. England, on the contrary, had a king, schools only for the nobility, and an illiterate people. These illiterate and king-loving people founded Boston and perpetuated English illiteracy.

Concerning Holland, I reply, if she had no king it was not her fault. After the death of William the Silent she tried in vain to find a king. She entreated the Duke of Anjou, King Henry of France, and Queen Elizabeth. The first two volumes of Motley's *History of the United Netherlands* are but the tiresome story of Holland in search of a sovereign. It is true that Holland shared with the other Protestant countries the educational impulse from the Reformation. It is true that the Union of Utrecht did recommend that schools should be established, but it could only recommend. It is true that the Synod of Dort did in 1618 issue a decree concerning education. But the schoolmasters, whom it requested the magistrates to provide, were only to teach the catechism. There is not a line or word in the entire decree containing the most remote allusion to anything but religious instruction.

The decree begins: "In order that the Christian youth may be diligently instructed in the principles of religion and be trained in piety, three modes of catechizing should be employed: I. In the home by parents. II. In the schools by schoolmasters. III. In the churches by ministers." Under the second head it says: "Schools in which the young shall be properly instructed in the principles of Christian doctrine shall be instituted, not only in cities, but also in *town and country places, where heretofore none have existed*, especially that *the children of the poor may be gratuitously instructed*, and not be excluded from the benefit of the school." All that can be extracted from this decree are church schools, for instruction in the catechism, free to the poor.

Motley and Brodhead have given us glittering generalities about the Dutch schools. A more recent writer has given us a graphic picture of them. "The method of education in children's schools was of the rudest and most unscientific kind. They were kept either by men or women, and many of the latter could not even read." "The middle and poorer kind of children's schools in the Dutch towns consisted generally of low, small apartments on the second story, with an outlook on a dirty lane or courtyard, and sometimes even of a damp cellar. Frequently, in summer, the school was held on the street beneath the penthouse, and inside, in many cases, there were separate apartments for the children of the richer and those of the poorer classes." "Oftentimes the school apartment served as a sleeping room or sitting room, or kitchen; and frequently the mistress kept a small shop for the sale of dainties." "If she could not read, she merely drilled the children from memory in the alphabet, the Lord's Prayer, the Ten Commandments, and the Creed, until the children could repeat them by heart, without having learned to read them."[1] It is little wonder that the Plymouth Pilgrims, after living twelve years among these schools, preferred to teach their children at home.

Turning now to England, we shall find that she shared in the revival spirit as fully as the Continental countries, and that zeal for learning was universal. Grammar schools began to be founded before the Reformation, and, after the dissolution of the monasteries, they multiplied so rapidly that by 1586 they were found in every corporate town.[2] During the reign of Elizabeth alone, 138 were founded. Instead of being schools only for the nobility, as Mr. Draper asserts, the deeds of foundation expressly declare that they are "for children of all degrees."[3] They were called "free schools," and many of them were by charter actually so, the masters being forbidden to take "any penny whatsoever" from the pupils. The masters were required to be "learned men," "graduates of the university," and "in holy orders." All these schools furnished instruction in Latin, some in Greek and Hebrew, and some in the elements of reading and numbers. In most cases special schools were provided for the "petties" and "incipients." The quaint old Richard Mulcaster, headmaster of Merchant Taylors' school from 1561 to 1586, in that curious treatise on education called *Positions*,[4] made it very evident that the thirst for learning was general among all classes of people. He discusses at length how to curb and restrain parental zeal. "Everyone desireth to have his child learned" (p. 112). "This flocking multitude which will needes to school" (p. 145). "There is great reason why order should be taken to restrain the number that will needes to the book" (p. 148).

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[1] Geddes's *History of the Administration of John De Witt*, I: 33-34.

[2] *Blackwood's Magazine*, V: 103.

[3] Report of Schools Inquiry Commission, 1868.

From these grammar schools for the middle classes came the settlers of Massachusetts, whom Mulcaster had not restrained. Such were the comparative educational opportunities of the settlers of the two colonies in their mother countries.

Before considering the schools in the colonies, it is necessary to define a public school in the American sense. *A public school is a school established, supported, and controlled by the people acting in their political capacity, as a civil body politic.* Pleading for New York, it is claimed that a school was started in 1633 by one Adam Roelandsen; that this school antedates the Boston Latin School by three years; and that it was a free public school for elementary instruction, while the Boston school only taught Latin to a few rich men's sons to fit them for Harvard College and the ministry. As this school of 1633 is the only one for which any claim is made, or of which in history or record there is any specific mention, it merits careful consideration.

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[4] *Positions*, by Richard Mulcaster, 1581. There is a London reprint, edited by Mr. Quick, made in 1888.

Its history has been written and published in two editions under the title, "History of the School of the Reformed Protestant Dutch Church" in the City of New York, from 1633 to the Present Time, by Henry Webb Dunshee, 1853 (1st ed.). It would seem as if this title alone gave away the whole point at issue.

The facts concerning the school are these, as recorded by its own historian. It was established by the Dutch West India Company. The masters were appointed by the Company after selection by the Classis of Amsterdam (p. 25). The salary was fixed by the company, and paid by its officers in New Amsterdam out of the local revenue until 1563, when it was paid by the city magistrates out of the same revenue. The only revenue was derived from the sale of wines and beer. There was no tax (pp. 25, 26). The school was under the management and control of the deacons of the Reformed Church (p. 33). After the English conquest, the support of the school fell wholly upon the consistory (p. 36). The schoolmaster was always *ex-officio* clerk, beadle, chorister, and visitor of the sick (p. 25).

It is evident that this was never a public school in the American sense. That it was ever free to any but children of the Reformed Church is doubtful. There were men teaching private schools, and the inference is legitimate that they instructed the children outside the Established Church. These children were many, and they were constantly increasing. From the beginning New York was a city of the world.[5] Eighteen different languages were spoken there at the time of the English conquest. In later times, Dunshee tells us, the school was only free to the poor (p. 63). Whatever other schools existed were of the same character (p. 26). When, in 1663, the Latin school, which the people had asked for, was established, the first master's salary was fixed at 500 guilders from the public revenue, and *six guilders from each pupil* (p. 53), which was exactly the usual method of support in Massachusetts.

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[5] Bancroft's *History of the United States*, II : 301.

Considering all these facts, it is not to be wondered at that the historians of New York have been modest. A work, claiming in its preface to be the first complete history of the city ever published, has no reference in its index to schools or education, though it does say in the text, of the church school, "The only school in the city has always been irregularly sustained owing to the want of funds and a suitable schoolhouse."[6] Another historian says of the first schoolmaster, "From some cause . . . he could not make a living at his vocation and so took in washing."[7]

Compare this Adam Roelandsen, the hero of Mr. Draper's novel, appointee of the Classis of Amsterdam, stipendiary of the West India Company, employee of the deacons of the Reformed Church, schoolmaster, catechist, precentor, clerk, and beadle, eking out his income from these varied duties by taking in washing—compare this man with Ezekiel Cheever, bred at St. Paul's School with John Milton, a graduate of the University of Cambridge, scholar and author, for seventy years teacher in the grammar schools of New England. The earliest New York schools are typified by one, the earliest New England schools by the other.

The school whose history is resuscitated by Mr. Draper is proved by its own historian to have been *only a parish dame-school taught by a man.* The fact is that there was no public school in the Dutch colony, because there was no public. The idea, embodied in the New England town meeting, of equal political privileges for all the people, was unknown in New Amsterdam as in Old Amsterdam. The much-talked-of liberty of Holland was municipal liberty, not individual liberty. May says: "Nowhere was there popular election."[8] Motley says the object of the war with Spain was not to maintain civil rights. "To preserve these rights was secondary. The first cause was religion."[9] Bancroft says: "The independence of Holland brought with it no elective franchise for the people."[10] Geddes says: "Instead of a democracy there came forth an oligarchy."[11] "On the one side stood this limited, refined, and highly educated, select oligarchical body; on the other was the great dense mass of the burghers, comprehending among them much bigotry and ignorance; while below the burghers was the non-burgher class, whose worst and most savage element was what the Dutch writers of the seventeenth century uniformly denominated the canaille."[12]

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[6] Booth's *History of the City of New York*, p. 147.

[7] Lamb's *History of the City of New York*, p. 72.

[8] *Democracy in Europe*, II : 68.

[9] *History of the United Netherlands*, I : 10.

So in New Netherlands. For the first nineteen years there was no municipal organization. And the Dutch people would have been contented to have it so, if the New England emigrants who settled had not brought with them ideas of municipal freedom.[13] But the Dutch authorities prohibited town meetings.[14] When in 1652 municipal privileges were granted it was in the Dutch and not the New England way. There were Great Burgher Rights and Small Burgher Rights. Only those of the first class could hold office; the others could "pay their fees and attend to their business."[15] In the governing class there were twenty; in the other 204.[16] No wonder Mr. Draper talks about schools for "the common people." Massachusetts had no common people; her "burgher rights" were all equal and all "great."

Such was the contribution of Dutch New York to the history of public schools. During the entire Provincial and Revolutionary periods there were in New York City only private and church schools. In 1805 a Free School Society[17] was incorporated for the education of such poor children as were not provided for by any religious society. This society continued to maintain these charity schools until 1852, from 1812 receiving aid from the State School Fund. In 1831 a city tax was levied to aid the work of the society.[18] This was the first money ever raised by direct taxation in the city of New York for schools. In 1842 a Board of Education elected by the people began the organization of Ward Schools.[19] These were the first public schools in the city of New York. From the settlement of the town until 1842 there was not a school of any kind established or controlled by the municipality. The public school system of New York City is just fifty years old.

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[10] *History of the United States*, II, p. 273.

[11] *Op. cit.*, I: 21.

[12] *Ibid.*, I: 22.

[13] Bancroft, *op. cit.* II: 308.

[14] *Ibid.*, II: 305.

[15] Lamb. *op. cit.*, p. 305.

[16] *Memorial History of the City of New York*, I: 283.

[17] Randall's *History of the Common School System of the State of New York*, p. 14.

So much for the metropolis! What of the State? In 1793 the Regents of the University called the attention of the Legislature to the advantages likely to accrue from the institution of schools in various parts of the State for the purpose of instructing children in the lower branches of education.[20] In 1795 a common school system was established, and in 1800 it was "substantially abandoned."[21] "Elementary instruction was supplied for a few months in each year by teachers employed by such of the inhabitants as required their services."[22] In 1812 a Commission, appointed to formulate a school system, in their report speak of common schools as desirable but as non-existing. "In populous cities and thickly settled parts of the country schools are generally established by individual exertion." "From neighboring States where common school systems are established by law" the commissioners "derived much information." The system reported by the Commission was adopted, so that the Common School system of New York State dates from 1812.

But it was not a Free School system. The income from the School Fund and from local taxation was supplemented by the receipts from rate-bills paid by parents who were not specially exempted on account of poverty. The schools were free only to the poor. This continued until 1867.[24] The Free Public School system—the American system—in New York is just twenty-five years old. It is a healthy and promising infant, and Mr. Draper has nursed it during the last six years with signal assiduity and skill, but he ought not to tamper with the family records nor alter the dates in the parish register.

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[18] *Ibid.*, p. 74. [19] *Ibid.*, p. 137. [20] *Ibid.*, p. 6. [21] *Ibid.*, p. 9. [22] *Ibid.*, p. 14. [23] *Ibid.*, p. 18. [24] *Ibid.*, p. 385.

MASSACHUSETTS

During the year in which Mr. Draper has been occupied in preparing his paper, his official duties have prevented him from making that careful and extended examination of the documentary history of Massachusetts which the exigencies of his case demanded. This is the more unfortunate as the position which he has undertaken to defend is peculiarly untenable.

His declarations cover two points: First, the schools were not supported by general tax; second, there was no public provision for elementary school instruction. His most sweeping propositions are as follows: "The early history of Massachusetts will be searched in vain for any enunciation of the doctrine that all the property of all the people, regardless of religious or other opinions, must by operation of law be made to contribute ratably to the education of all the children of the people." "Save Latin schools open to a few boys who were sons of the comparatively wealthy, and who were preparing for the ministry or for the public service, there were no public schools in either of the Massachusetts colonies for one hundred and fifty years after they were first settled."

Both of these propositions, as I have shown, were absolutely true of New York. They are both absolutely false as applied to Massachusetts.

The first proposition is flatly contradicted by Mr. Draper's own authorities. In the dispute between the people of New Amsterdam and the Company, in 1649, the people had complained because they had no schoolhouse, and they also asked for two schoolmasters. Secretary Van Tienhoven, replying for the authorities, compares the colony with New England. After telling the people that they have no more school advantages because they are unwilling to pay for them, he says:

"In New England everyone is assessed by the local government according to his means, and must pay to the extent of his property, and as the magistrates tax him, for (here follows a list of town charges) erection of schoolhouses and salary of teachers."[25] This statement is made, not by a modern Massachusetts historian writing an eulogy, but in a contemporaneous State document, by a Dutchman of New Amsterdam. The Massachusetts records of every kind show that Van Tienhoven knew whereof he affirmed.

The school law of 1647 recognized the "doctrine," if it did not enunciate it, by authorizing the towns to support their schools by general tax. All of the towns supported them by such a tax long within Mr. Draper's one hundred and fifty years. Nearly all of them supported them so, in part, from the earliest date. Some of them had never any other mode of support. It is clear that the doctrine, that all the property of all the people shall contribute ratably to education, is as clearly enunciated by a general tax for half the master's salary as for the whole of it. The point at issue is as to the generality of the tax.

Space will allow but few citations. They can be multiplied indefinitely. Mr. Draper says the schools were so little thought of that Governor Winthrop makes no mention of them in his journal. Strange that he should not have discovered this historic passage: "Divers free schools were erected, as at Roxbury . . . and at Boston, where they made an order to allow forever fifty pounds to the master and a house, and thirty pounds to an usher, *who should also teach to read and write and cipher*, and the charge to be by yearly contribution, either by voluntary allowance or by rate of such as refused."[26] There is no evidence whatever that the Boston Latin School was ever supported even in part by tuition fees. Governor Winthrop thus controverts both of Mr. Draper's propositions. The school was a free school, and it furnished elementary instruction. The Dorchester school was supported by income from town property– an indirect tax. There were no tuition fees.

The records of the little town of Dedham disprove every point of Mr. Draper's contention. In 1642 the town set apart some land for a free school; in 1644 they voted twenty pounds per annum for seven years; in 1648 the town built a schoolhouse; in 1651 they renewed the vote for twenty pounds. The custom was to make a town rate every six months for the master's salary, and the *same number of men paid the school tax as paid any other tax for town charges.* This is proved by the recorded list of taxpayers. The master bound himself "to teach to read English and the Accidence [elementary Latin] and to write, and the knowledge and art of arithmetic and the rules and practice thereof." Here was a public elementary school, supported wholly by direct taxation of all the persons and property, in continuous existence from the settlement of the town. (See *Dedham Historical Register*, vol. 1, *Schools and Teachers*, by Carlos Slafter, Esq.)

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[25] *New York Colonial Documents*, I : 424.

[26] Winthrop's *History of Massachusetts*, II : 215.

In the little fishing hamlet on Cape Ann, now known as Manchester-by-the-Sea, in 1723, sixty years within Mr. Draper's limit, the town voted a tax of ten pounds yearly for four years for "a free school, which is for all sexes for reading and writing English and for sifering that belong to the town of Manchester." These plain people were not "enunciating" doctrine, but they were living it.

Mr. Draper affirms that only "a few brighter boys were sent to the Boston Latin School, that they might enter college and prepare for the ministry." Here is what the parents say in a petition to the town (1710): "Very many hundreds of boys in this town, who, by their parents, were never designed for a more liberal education, have spent two, three or four years, or more, of their early days at the Latin school.[27] In the school in Charlestown were taught from the beginning "Latin, writing, ciphering, and to perfect children in reading English." In Dorchester "Latin, English and other tongues and also writing." In Watertown, the master is "to teach to read and write, and so much of Latin, according to the order of the court;" he is also to teach "such as desire to cast accompts."

These instances are, perhaps, sufficient to show that the search into the early history of Massachusetts is not wholly "vain." So far are Mr. Draper's positions from being true that it may be affirmed that from the settlement of the colony of Massachusetts until the founding of Dummer Academy in 1780, just 150 years, there was not a school of any importance, save the Roxbury Latin School, which was not a public school, established by the town, controlled by the town, and supported wholly or in part by the town. The last charge for tuition of which there is any record in any of these public schools was in Salem, in 1767,[28] just a hundred years before New York abolished the odious "rate bill." Massachusetts enjoyed a rounded century of absolutely free public schools, elementary and secondary, before New York had reached the same goal.

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[27] Boston Public Latin School, Catalogue for 1886, p. 26.

The limitations of space forbid my pursuing this discussion further in detail. I have room only for two considerations of a more general character. Mr. Draper entirely misapprehended the spirit and purpose of the paper read at Philadelphia. It was not written to glorify Massachusetts at the expense of the other States. It was prepared, as an honest contribution to the educational history of the country, from material gathered in a somewhat extended study. I have reason to know that it was received as such by most of those who heard it.

The purpose of the writer was to show that the modern form of compulsory school legislation—that requiring attendance upon public schools—is, in Massachusetts, only the latest stage of an evolutionary process which has been going on from the beginning; that the whole school history is rooted in the law of 1642 compelling parents to educate their children, and draws all its vitality therefrom; that the early enunciation of the doctrine so clearly stated by Professor Bouquillon in the EDUCATIONAL REVIEW for April, that "the State can coerce the parent to give the child the education that fits him for his earthly destiny" (p. 371), has saved Massachusetts from the long struggles and the frequent reverses which have marked the educational history of other States.

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[28] Records of School Committee, Salem, Mass.

The six steps in the history of compulsory education in Massachusetts are clearly marked in records which are abundant and accessible. The specifications made in the Philadelphia paper are unimpeached and unimpeachable. Their historical importance cannot be obscured by logomachy.

Finally, Mr. Draper fails utterly to understand the spirit of the New England political system as rooted in local autonomy. The people of New York have always shown a willingness to be governed; they began that way. The people of New England have as signally manifested a determination to govern themselves; they began that way. Having enjoyed the sweets of authority for a season, Mr. Draper has a natural affection for an authoritative State educational system. But the towns of New England have always been jealous of centralized authority, and to-day they are keenly sensitive to anything that looks toward taking the schools out of the hands of the people. They believe that town-established, town-supported, and town-controlled schools are, on the whole, the best for them.

Though conscious that their system is not perfect, they would rather bear for a time those ills they have than fly to others that are patent to all observers. They feel that the educational interests of the towns are as safe in the hands of the local authorities as they would be under county and State officials, whose "professional supervision" begins and ends with a single turn of the wheel of party politics.

Nor do they feel at all ashamed of the results attained under the Massachusetts system. They know that their State does not suffer by comparison with New York in the liberality of the people toward education of every kind for every class; in the culture or efficiency of the teaching force, nor in the intelligence and enterprise which the schools have developed. Massachusetts is willing to learn; she is willing to teach; but she is not willing to be misrepresented.

GEORGE H. MARTIN

AGENT OF THE STATE BOARD OF EDUCATION,
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VI

COMPULSORY EDUCATION IN THE UNITED STATES, II

With the revival of interest in education which marked the middle of the present century, there was aroused an increased attention to the question of compulsory school attendance. The first fruits of this new activity were the truancy laws of 1850 in Massachusetts. The feature which chiefly distinguished these from preceding enactments was the absence of any supervision of parents or employers. The children alone were under the law's restraint. Between the ages of six and fifteen years they were made subject to such rules and ordinances as might be adopted by cities or towns to enforce school attendance. The penalties were not to exceed $20 for each offense. Truant officers were authorized to make complaints of violation of these ordinances, and justices might place offenders in institutions of instruction, or houses of reformation.

This provision for special officers to enforce truancy regulations, strangely enough, has only recently been adopted in most of the States. Even those which have long had compulsion embodied in their statutes are only now beginning to see the importance of some form of systematic or distinctive official supervision. It was in keeping with the marked tendency of Massachusetts school legislation to exalt practical expedients above mere legal generalities, that measures should be taken to check the growing evil of absenteeism even before the principle of compulsion had itself been definitely asserted by modern statutes: but it will be remembered that the old law of 1642 enjoined on parents the teaching "by themselves or others" of their children, and the degree in which this command must have approved itself for two hundred years to the people of the commonwealth is shown by the manner in which the first of the modern enactments of like tenor were received. It was not as an innovation, but by natural sequence, that the truancy laws of 1850 served to prepare the public mind for the broader legislation of 1852. It was seen that any law, to be effective, must reach not only the children themselves, but those in whose care they were placed. This, in fact, had been the guiding principle in 1642. What was wanted in 1852 was a definite application of the principle to existing conditions. In the law then adopted, embodying most of the requirements then deemed essential, is to be found the working model of nearly all the effective compulsory education legislation since engrafted into the school systems of other States. What, then, were the distinctive features of this Massachusetts law of 1852?

1. It provided that every person, having under his control a child between the ages of eight and fourteen years, should send such child to some *public* school within the town or city during at least twelve weeks, if the public schools should be kept that length of time, in each year. Six weeks of the twelve must be consecutive.

2. A definite penalty was prescribed for violation of this provision by parents or guardians—a fine of not more than $20 for each offense.

3. School committees were charged with the duty of inquiring into cases of violation and reporting the facts to the town and city treasurers, but these latter officials were responsible for all prosecutions.

4. Certain children were exempted from school attendance (and here was one of the weak points of the law). These were: (1) such as attended schools out of town; (2) those who were "otherwise furnished with the means of education for a like period of time"; (3) those who had already acquired the branches taught in the common schools; (4) children prevented from attendance either by their bodily or mental condition, or by the poverty of parents or guardians.

The history of this first attempt to control school attendance is instructive chiefly as a record of failures. This negative value, however, is by no means to be despised. It is an experience that should be thoughtfully studied by every State about to enter on a similar experiment. Defects were soon discovered in the machinery provided for the law's execution. The town treasurers, as a class, were not the officials who would naturally be chosen to see to the enforcement of an educational law. In this case, as might have been expected, they seldom took the initiative in prosecutions, and generally refrained altogether from taking part in school cases. In 1859 it was sought to remedy this defect by making the town treasurers liable to a fine of $20 for failure to prosecute after notification by the school committeemen or truant officers, but there was always much laxity on the part of the treasurers, and in 1873 the function of prosecutors was transferred to the truant officers, whose administration has been far more efficient.

The exemption from public school attendance of all children "otherwise furnished with the means of education" proved a dangerous loophole. This unqualified phrase was held to apply to the instruction given in private and parochial schools of every grade, the only test being duration of attendance. The problem was rendered the more serious by the increasing number of schools supported by foreign nationalities, especially in manufacturing districts. Finally, in 1878, a provision was incorporated in the law granting school committees the power to approve private schools only when satisfactory evidence is afforded that the teaching corresponds in thoroughness and efficiency to the teaching in the public schools, and that the progress made by the pupils in studies required by law is equal to the progress made during the same time in the public schools; all such teaching to be *in the English language.* (I may note, in passing, that twelve years later a discussion of the principle embodied in the last clause completely destroyed the political equilibrium of one of the Northwestern States, while it seriously threatened that of another.)

The period of required attendance, at first only twelve weeks in each year, was extended in 1873 to twenty weeks, and more recently to thirty weeks, for all districts in which the schools are in session for so long a time.

Meanwhile, the truancy law had been found ineffectual in checking the growing evils at which it was aimed. In 1862 it was made mandatory on the cities and towns to make and enforce truancy regulations, but the added requirement was of little avail, for in 1866 less than one-third of the towns and cities of the State had chosen officers for the purpose.[1]

In 1873 the law was greatly improved by giving to the school committees the appointment of truant officers, and imposing on the towns the duty of providing places for confinement and instruction of truants. The provision for punishment by fine was abolished, as the purpose of the law was reformatory, rather than penal. Enforcement was sought to be secured by a proviso adopted in 1878, by which towns not complying with the truancy laws were to be deprived of their share of the income from the school fund.

Thus the history of compulsory-attendance legislation in Massachusetts is a record of gradual but steady progress. Perhaps the experience of no other State is so full of useful lessons. Hardly a mistake has been made in recent years, by the advocates of compulsion elsewhere, that Massachusetts did not make and repent long ago. In few States have laws of this character survived so long a period of inefficacy, only to be revived and strengthened and improved, as did the Massachusetts act of 1852. But Massachusetts has taken no backward step. Her success is far from complete, but there has been a steadily growing determination to carry out to the fullest extent practicable the policy to which the State became committed, as the pioneer of the movement in this country four decades ago.

But leaving Massachusetts for the present, let us take a brief survey of the beginnings and progress of compulsion in other States. Roughly speaking, the whole history of the movement is confined to the last quarter-century. Here and there, it is true, something had been done, by agitators like Mann and Barnard, to rouse public opinion on the question. In educational conventions it had been a topic for discussion. Congress, in 1864, passed a compulsory education law to apply to the District of Columbia, but it speedily became a dead letter, and has remained such to this day. During the next ten years, however, much interest was developed, especially in the older and more densely populated States.

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[1] Commissioner of Education, *Report for* 1888–89, Vol. I : 473.

Vermont, in 1867, passed a compulsory law, but almost nothing was accomplished by it, since the procedure for its execution was not definitely prescribed. The period of required attendance was twelve weeks; but in 1888, when the law was overhauled with a view to making it a really effective part of the educational code of the State, this period was extended to twenty weeks.

New Hampshire had had a truancy law like that of Massachusetts for about as long a time, but the first general act for compulsory education in that State was passed in 1871. It seems never to have been enforced. The Michigan law of the same year was not so complete a failure, perhaps, but it had the serious defect, common to most of the early attempts at compulsory legislation in this country, of making prosecutions depend on the complaints of private citizens. This was the case in Vermont and New Hampshire, and in many of the States that legislated on the question in after years. In the opinion of the Commissioner of Education, "All experience goes to show that the complaints of voters or taxpayers have never yet set in motion the machinery for enforcing a compulsory law."[2]

In Connecticut, the interest developed by the publication of Superintendent Northrop's report on obligatory education resulted in the full establishment of a compulsory system in 1872. This law has been intelligently and energetically enforced for twenty years, and apparently it never stood higher in public esteem than at the present time. Amendments have been found necessary from time to time, so that the law, as it stands, differs in important particulars from the original enactment; but even in its early years it showed itself to be what no other compulsory law at that time was—something that could be enforced. The tendency in Connecticut has been steadily in the direction of State supervision. State agents, rather than local officials, usually take the initiative in making prosecutions. In great measure the comparative success of the Connecticut law is probably due to the fact that actions for its violation are not made dependent on the complaints of individuals.

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[2] *Report for* 1888–89, Vol. I: 513.

In New York, agitation for a compulsory law was begun at an early day, and strong opposition was encountered. In 1866, when Massachusetts was the only State that had enacted a thorough-going law, the New York Legislature directed an exhaustive investigation to be made by the superintendent of public instruction of the educational systems of foreign countries, with special reference to the problem of school attendance. Superintendent Rice's report in the following year was a very valuable one, and contributed much to an intelligent study of the question. The superintendent himself took ground against the passage of any compulsory statutes, believing that the persuasive power of free schools had not yet had a fair trial in the State. Similar views were held by his successors, and thus compulsion failed in New York to secure the advocacy of the authorities on whom its success as a practical measure of educational administration so largely depended. In 1874, after repeated failures, a bill passed both Houses of the Legislature, and became a law. The expediency of the measure was doubted by the superintendent, but his aid was promised to secure its enforcement. In most parts of the State the very existence of such a statute has been persistently ignored from the outset.

Since 1880 the first serious attempts to amend and enforce the old compulsory education laws, and to make new laws capable of enforcement, have been made. The final paper of this series, therefore, will be devoted to a discussion of the present status of compulsion in the twenty-eight Commonwealths in which it is in operation.

WILLIAM B. SHAW

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VII

RESULTS UNDER AN ELECTIVE SYSTEM, I

This paper offers the results of a study extending over some six years of interesting experience in Indiana University, relative to the workings of the principle of choice in determining college courses. That the privileges of option appear in various forms, now almost absolutely without restriction, and again in the guise of prescription itself, is familiar to every educator. Whether, by the general and educated public, the results here reported be regarded as confirming the general principles of freedom, or the reverse, will depend, in a measure at least, upon the interpretation put upon the particular phase of that principle, or the extent to which it has been employed in each particular institution.

As the organization of the courses in Indiana University is distinctively its own, a paragraph is inserted setting forth, in a general way, the plan. It makes little of class distinctions, puts all subjects on an equal footing, grants but one degree, and allows great freedom among lines of study, with but little among subjects.

For the purpose, then, of investigating the character and composition of the courses actually selected by students under this elective system, an inquiry was begun by the department of pedagogics,[1] with the first class under the new administration.

CLASSIFICATION OF COURSES

To this end, the subject-matter of the courses offered in the various departments was set off into groups; each group being more or less composite, but made up of related subjects. These groups are (*a*) the languages, including English, Greek, Latin, German, and French; (*b*) the physical sciences, comprising geology, botany, zoölogy, physics, and chemistry; (*c*) mathematics, both pure and applied; and (*d*) the humanities, or those knowledges having to do with the spiritual and institutional life of men—history, sociology, philosophy, (psychology, logic, ethics, art, criticism, etc.,) and pedagogy. Languages other than those mentioned under *a* were included under related heads. Astronomy, for local reasons, was considered with mathematics. When taken as a part of under-graduate work, law was included with social science. Some explanation should be made, perhaps, of the name given to the fourth class—"humanities." It is used simply to include those subjects which have to do with human life and conduct; specifically, such experience as works out in institutional and social forms. The group comprises the historico-ethical studies, and such speculative inquiry as falls under the head of general philosophy, whether considered in their practical, theoretical, or historical aspects.

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[1] For much of the material here presented, the examination of records, and helpful suggestions, the writer is under obligation to certain members of the pedagogical department, teachers of many years' experience, prosecuting advanced studies, and to whom too much credit cannot be given for their faithful and painstaking inquiry and accuracy. The writer believes the trustworthiness of the statistics cannot be questioned.

THE LIMITATIONS IMPOSED

The present university policy was adopted in 1885, and the studies (except as elsewhere explained) include only those students whose courses were wholly or chiefly determined under the elective principle. With this in view, there were excluded from the table, (*a*) those who entered from other institutions, taking advanced standing; (*b*) those who entered from certain high schools and the State Normal school, commissioned to fit for the higher classes; and (*c*) all who, because of age or experience, were allowed substitutions that made their courses regular. The original inquiry included but sixty cases, extended over a relatively shorter period, and made no attempt to analyze the groups into smaller wholes. The general inferences then made, however, correspond closely with those since calculated with more detail. For those sixty, the average percentage of language in the total course was a fraction over 48; of science, 19; of mathematics, 14; and of the humanities, about 22. This alone was suggestive, as showing the large preponderance of language-study over any other; indeed, there was almost as much of this one class as of all the others combined. This, too, in an institution better known for its science teaching than for anything else. Scarcely less noticeable, also, was the relatively large proportion of the social and ethical studies. Trebling the number of cases has not, as will be seen, changed the averages in any appreciable degree, or the pedagogical inferences.

The preparation of the present tables was undertaken with the thought that a sufficiently large number of cases should be studied to eliminate possible errors from incidental variations. The names of students were omitted, and the cases numbered, to exclude the opportunity for the exercise of any personal interest on the part of the inquirer. The courses taken were "selected" in no other sense than with the restrictions already mentioned. Except as noted above, every course was taken, however distorted, or scattering, or haphazard, or otherwise unsatisfactory. The list, as finally completed and here reported, includes all available students who completed a four years' course in Indiana University, in the period from 1887 to 1892 inclusive, and numbers one hundred and ninety-two names. It excludes fifty graduates, for the reasons stated above.

Besides these recent courses there have been embodied in the tables, for purposes of comparison, fourteen others finished in 1881, and twenty-five finished in 1880, both groups falling in the period of transition, between the traditional three prescribed courses and the expansion incident to the freer policy of the last seven years. During these years the percentage taking language was a fraction less than it has been since, and that taking mathematics a little more. Both differences are so slight as to be insignificant in comparison with the general average. These, once more, were preceded by a list of twenty-one courses, each covering four years, all taken under prescription, and representing various years from 1832 (in Indiana University) to 1889, and a half dozen institutions.[2] While this, again, shows a somewhat larger proportion of language, and still larger percentage of mathematics, the list in this instance is only a fragment, and can scarcely furnish ground for any reliable inference. The conclusions hinted at are suggestive, and would be more so if the period represented could be fairly covered.

THE ORGANIZATION OF INSTRUCTION

The organization comprises twenty coördinate and fairly independent departments, as follows: English, Greek, Latin, French, German, and rhetoric and oratory; geology, botany, zoölogy, physics, and chemistry; pure and applied mathematics (separate departments); European history, American history, economics and social science, philosophy, and pedagogics; and law. A student may choose as his specialty any one of these courses, except that upon American history and law. All of the former and the first year of the latter, however, may be elected by any student as a part of his regular course. "All these courses demand the same preparation for admission, all require four years for completion, all oblige the student to follow some special line of study during three or four years, and all lead to the degree of Bachelor of Arts."

The college year, for convenience of administration, is set off into three terms of about equal length. Each undergraduate, who is a candidate for a degree, is required to carry the equivalent of fifteen hour's work per week, for four years. A full course thus means thirty-six terms of daily work followed under prescribed conditions. These are substantially as follows: Three of the thirty-six terms must be in the department of English: that is, an historical or critical study of the English language. The equivalent of three must be taken from the department of rhetoric and elocution. Three must be in science and some one science. Three must be in mathematics. Six must be in some language or languages other than English. (Under this provision Greek, Latin, German, and French are given equal rank in all respects.) At least nine terms (in most subjects twelve) must be made up from the announcements of one department, the work of which constitutes the major subject of the individual course. The remaining terms may be selected, practically at the will of the student, from any of the departments offering work.

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[2] In January, 1884, most of the university records were unfortunately destroyed by fire. This list of the older courses includes all that could be made out from the ruins of books remaining, from catalogues, and the assistance of those who could be seen personally.

The subjects usually taken by freshmen are English, mathematics, and either some language or some science. "The selection of a speciality is made at the beginning of the sophomore year"; but may be changed by a student "with the consent of the Professor in charge of the department which he leaves, and also of the one he wishes to enter." . . . "No student will be graduated who has not finished all the work required for graduation in some one department, however much he may have done in other departments."

From the preceding statement, including extracts from the last official report of the university, it will appear that about one-half of the entire course of any student is prescribed; the English, rhetoric and allied subjects, absolutely, but with choice between the two courses in mathematics, among the four foreign languages, and the five sciences. Moreover, it must be kept in mind that the major subject itself is selected by each student from among the eighteen coördinate departments. This gives large room for choice in everything except English. This, then, may be taken as the particular phase of the "open system," shown in Indiana University; one-sixth of the work is prescribed; five-sixths are left to the preferences of the student most interested. Or, considering the limitations imposed, three-fourths of the entire course of each student is regulated, one-fourth left to the free choice of the individual.

QUANTITY OF THE COLLEGE COURSE

One aspect of change appears in the number of terms of work really passed upon by each student. The earlier administrations usually required four, and for certain terms five, parallel lines of study. This would aggregate, on the basis of three terms to the year, forty-eight to fifty-five terms of work in the four years. Some relief was granted during the senior year, and minor concessions made for short periods to freshmen. For a generation, however, after the incorporation of Indiana College (1828), the average length of the course was nearly fifty terms. For the first twenty-one cases included in the table, all from Indiana University prior to 1880, or from other institutions with like traditional courses, the general average was forty-eight terms; and for the entire list of courses tabulated for the period prior to 1882, the number was forty-six.

On the contrary, while the general average of the 252 courses studied is a fraction more than forty-one terms, the corresponding number for the six years under the recent policy falls below forty (39.4). That is, while the work has been abundantly enriched in twenty years, the departments multiplied and options allowed, the number of subjects taken as represented by the different terms of work has diminished seventeen per cent. This means obviously more compactness in the average course, a relatively longer time spent upon each subject, concentration of effort; all of which are advantages to the student, and marks of improvement characteristic of the modern spirit.

Again, as bearing upon the same point, while there are more subjects than formerly (the number offered having more than quadrupled in twenty years), the statistics show a gradual diminution of one-term subjects, the reduction for the period in question being about fifty per cent. Leaving out of account, also, the lines of the specialties, there is a significant increase in the number of subjects to which two years or more of time has been given, as opposed to the partial courses and brief views, and occasional, disconnected studies of years ago, and incident generally to prescriptive training. This is a great and obvious gain. As showing a free and ready acceptance of the work offered, it appears that, while graduation requires the completion of a minimum of thirty-six terms, the average length of course for six years has been approximately forty terms. Nine only of the 192 passed through technically on less than the full time; thirty-eight of them on the exact requirement, leaving three-fourths of the number doing from one to six terms of extra work.

These additional courses, representing by so much an enrichment of the college training, are, it must be remembered, voluntarily assumed, as relatively few courses could be so taken under the earlier management, and pursued without the disadvantages accompanying an already overcrowded day of four or five exercises.

It will already have been noted by the observant reader that while half of the entire curriculum of the average student and of each student is prescribed, the prescription is by types, not subjects. Neither ancient nor modern languages, nor both, are required, but two years' work selected from the four. It is not a particular science, or even one or both of the two great groups of sciences (the biological and physical), specified to be taken in common; but one continuous year in science, the selection of the particular laboratory subject being left absolutely to the student. The purpose of the college being liberal culture, what is sought is not the possession of a language or a school of languages, but the training that comes from a systematic, continuous, intelligently directed study and use of language as an instrument of culture. So of science: the scientific method, and the habits and attitudes of mind involved in and resulting from a painstaking study of natural phenomena and their laws, are incalculably more important to the maturing youth than to know the conclusions of the entire circle of the sciences. The principle is equally true and for the same reasons, of the humanities. An interested and therefore willing and vigorous study of any one of the group is greatly to be preferred to an unwilling and half-hearted, and so unintelligent following of any other or all of them combined. How the elective principle operates under the influence of such standards of culture and using the organization just described will now appear.

PROPORTION AMONG GROUPS

In the following table (A) are exhibited the proportions of the four groups of subjects for the several classes of graduates whose courses have been tabulated. In this, as in others that follow, a distinction is preserved both by years and totals, between those taken under the system of prescription (called "Traditional Courses") and those in Indiana University under the present organization (tabulated under "Elective Courses)."

TABLE A.—SHOWING GENERAL AVERAGES.

No.	SUBJECTS.	TRADITIONAL COURSES.				ELECTIVE COURSES.							GENERAL AVERAGE.
		Misc.	1880.	1881.	*Aver.*	1887.	1888.	1889.	1890.	1891.	1892.	*Aver.*	
1.	The Languages..................	50.1	45.9	45.8	47.2	51.4	51.7	45.9	42.2	47.1	47.4	47.6	47.5
2.	The Sciences.......	15.4	19.1	20.2	18.1	15.9	17.7	18.2	21.7	14.4	16.1	17.3	17.6
3.	The Humanities............... ...	11.9	17.9	21.3	18.4	21.1	20.4	25.3	23.1	27.	24.4	23.5	21.8
4.	Mathematics...	18.4	13.1	12.7	14.7	11.6	9.9	10.6	13.1	11.5	12.2	11.5	12.6

Throughout the period the average of language—that is, the percentage of language, in the total course—has never exceeded 52 per cent. nor fallen below 42 per cent.; the variation in science is greater, though not in any respect uniform, while in both mathematics and history it is even less.

The table means that in the average course of 40 terms, about 20 are given to language (including the vernacular), 10 to the humanities, 6 to physical science, and 4 to mathematics; or in every hundred exercises, there would be approximately 48, 24, 17, and 11 in the respective classes in the order mentioned. The nine oldest courses tabulated, including one from a class of 1833 and all taken before 1870, average less than 49 per cent. of language. And, excluding two of these who took an early scientific course, the one having no language except English, and the other no Greek, the average of the other seven was nearly 55 per cent. For the remaining twelve courses, all still taken under the regime of prescription, the proportion of language was a fraction over one-half. Not less suggestive is the fact that the proportion of science in the total course has not greatly changed. Indeed, almost half the courses noted prior to 1876 had more science in them than the average for all the years since.

Neither in science nor language, then, has any important change occurred as to the distribution and proportion of subjects. Under the elective system, the often repeated fear that language-study would suffer from an undue cultivation of the physical sciences, finds here no confirmation. On the contrary, it seems, as will appear more emphatically elsewhere, to have effected a readjustment of the languages, and given them new significance. The real, and really helpful, modification brought about in the proportions of the subject-matter, is shown in the exchange made between the humanities and mathematics.

In the older courses mathematics shared with the classics the honors of liberal culture. What are here denominated the humanities received but scant recognition. Three months each in mental and moral philosophy, and a short time in logic, a text-book study of political economy, and brief courses in ancient history, with an occasional excursion into mediæval and modern times, made up the maximum of attention to this entire group of subjects, unless there be included the lectures upon the Evidences of Christianity which formed a part of the course for forty years. Mathematics has, however, a very different and more honorable history. In its various phases it made up at times a full fifth of the course prescribed. Of the twenty-one earlier courses, thirteen included from nine to twelve—an average of ten—terms of mathematics in an average of fifty-one terms in the full course. This was somewhat modified in the introduction of parallel courses (two in 1855, and three in 1877), though up to 1880 mathematics claimed about one-sixth of the time. Since then, what has been given to the study of modern institutional life and the scientific treatment of philosophical problems, all of which is a positive and large addition to the old curriculum, has chiefly been subtracted from the mathematics. Another, though smaller part, has gone over to physics. This does not mean that so much less attention is now given to the subjects once taught as mathematics, but, in part at least, that the change, here again, is readjustment.

The reorganization of the curriculum, and the comparative independence of departments, have made possible a full course in general and critical history, a two years' course in American constitutional and political history, these occupying the full time of two professors; and a course in economic and social science covering three years; a like time devoted to general philosophy, and another to pedagogics; all within the field once given from three to six terms, only, five full professorships where before there was one. Summarizing the paragraph, it may be put with a fair approximation to the truth, in this way: The proportion of language remains almost unchanged; there has been a small diminution in science, and mathematics and the humanities have exchanged places.

The four groups of knowledge contributed to the making of the older courses, and in much the same proportion as to the present ones. The advance here has not been in the way of discovering new fields, but in enriching those already worked. With varying interests, also, have come varying estimates of the functions and efficiency of the individual languages and individual sciences. But the relative importance of the two, as shown by their place in the respective courses, has not greatly varied. That is, the modification of the course, incident to the "open system" followed, has been one of numerous subtractions and additions throughout the several departments, rather than an established transfer of interest from any old group of subjects, or the dominance of any new.

(1) THE LANGUAGES

The accompanying table, and those which follow, will present the essential points for this feature of the discussion beginning with language. As in the previous one, this table (B) includes the averages for the nine classes, but shows the proportions of the five languages only, each with reference to all the others, and to the aggregate of language in the total course.

TABLE B—AVERAGES OF LANGUAGES

NUMBER.	LANGUAGES.	TRADITIONAL COURSES.				ELECTIVE COURSES.							GENERAL AVERAGE.
		Misc.	1880.	1881.	*Aver.*	1887.	1888.	1889.	1890.	1891.	1892.	*Aver.*	
1	English....	8.8	13.	10.7	11.	9.4	12.3	8.1	12.7	15.1	19.	12.8	12.1
2	Greek .. .	16.8	16.4	13.2	14.9	10.	7.1	10.5	5.9	6.5	5.5	8.9	11.1
3	Latin.....	17.9	12.3	13.6	14.5	10.8	12.4	8.6	6.4	7.	7.8	9.	10.8
4	German...	3.7	4.5	7.5	4.9	13.2	14.7	13.1	12.4	13.8	12.9	13.4	10.6
5	French.....	2.6	1.7	2.3	2.2	8.5	5.9	6.6	4.5	4.3	3.6	5.6	4.4
	TOTAL . ..	49.8	45.8	48.5	47.2	51.1	51.7	43.9	47.2	47.3	47.4	47.2	47.1

Prior to 1870 French does not appear in the course, and German but sparingly; there was but half as much English as now, and language, averaging half of the entire course, was chiefly classical. After the year named, English, French, German, and occasionally Hebrew, together made up a little more than one-fourth of the language study, and the ancient classics the other three-fourths—the two, Greek and Latin, receiving about equal attention. Upon the expansion of the work into two and then three parallel courses, Greek held its own longer than Latin, though the proportions vary considerably with successive classes. That is, in a given period, Latin was taken by more students, though the ratio of the chosen language to the total course was twice as great among those who took Greek. For the first time, in 1887, German formed a larger part of the average course than did either Greek or Latin. This relation has since been maintained. Indeed, for five years the proportion of German has been nearly equal to that of both of the ancient classics, or a little more than twenty-eight per cent. of the total language. That this subtraction from the classics has not been at the same time an addition to any unrelated group of studies, and so a total loss will appear upon an inspection of the footings in Table B. With considerable shifting among the several languages, the average proportion of language remains practically unchanged. Indeed, omitting French, the average of the other four languages for all the nine classes differs by less than one per cent. from that of any one of them. And even among the elective courses the variation is but two per cent. in an aggregate of 44.1 per cent.

As exhibiting in yet another way this distribution of the four groups, Table C is inserted, showing the total number of different students credited to each of the four foreign languages for the years 1887 to 1892 inclusive. Of the 192 graduating in the six years, all, with one exception, took English, this being a required subject. One hundred and seventy-two took German for a longer or shorter time; 158 took Latin; 98 took French, and 69 Greek. Or, put into hundredths, 82 per cent. of the total number had instruction in Latin, 36 per cent. in Greek, and 31 per cent. in both. Of the 123 who took no Greek, all but two had German. The change here again is an exchange with a kindred language, not a surrender to an alien class.

TABLE C—SHOWING NUMBER TAKING EACH LANGUAGE

Year.	*No. of Cases.*	*Taking Greek.*	*Average in Course.*	*Taking Latin.*	*Average in Course.*	*Taking German.*	*Average in Course.*	*Taking French.*	*Average in Course.*
1887	18	8	22.5	16	12.2	18	13.4	15	10.1
1888	36	11	23.2	35	12.7	29	18.2	21	10.1
1889	32	15	22.5	28	9.8	28	15	22	9.7
1890	32	14	13.5	23	9	27	14.7	16	9
1891	42	11	24.9	32	9.2	41	14.1	15	11.9
1892	32	10	17.6	24	10.3	29	14.2	9	13
TOTAL,	192	69	20.7	158	10.5	172	14.9	98	10.6

But among these several courses, Greek ranks first in its ratio to the total of all the subjects taken (21 per cent.); German next (15 per cent.); Latin (10 per cent.), and French (10 per cent.). That is, in the pursuit of the language studies, Greek shows fewer partial courses, and French and Latin most. If an integrated course is an ideal in college education, there has been only apparent loss in the diminution of Greek as compared with the earlier policy. Who will say it is not better to have made Greek a fifth of one's course from choice than one-fourth under stress? or to have exchanged Latin for German, if the latter really fitted itself to some serious purpose?

(2) THE SCIENCES

A detailed investigation of the distribution of the science work also, in the present period and in that immediately preceding, is not less suggestive, and confirms the inference that the principal change effected in the course, under the influence of free options among the departments, is one of readjustment, not of monopoly of supposed favorite subjects, or neglect of others.

The accompanying table presents this distribution of work among the sciences:

TABLE D—AVERAGES OF SCIENCE

No.	SUBJECTS.	TRADITIONAL COURSES.				ELECTIVE COURSES.							GENERAL AVERAGE.
		Misc.	1880.	1881.	*Aver.*	1887.	1888.	1889.	1890.	1891.	1892.	*Aver.*	
1	Geology..	2.5	5.3	4.5	4.2	2.5	2.4	2.2	2.3	1.7	1.8	2.2	2.8
2.	Botany...	.8	.6	.9	.8	2.4	2.4	2.5	2.4	1.8	2.7	2.4	1.8
3.	Zoölogy..	1.7	1.5	3.4	2	5.4	4.6	5.7	4.6	3	2.9	4.4	3.7
4.	Physics...	5.8	4.7	5.9	5.4	1.7	2.3	3	4	3.2	4.5	3.6	4.2
5.	Chemistry	4.7	7	5.3	5.3	4	6.1	4.2	8.1	4.1	4.2	5.1	5.3
	TOTAL....	15.4	19.1	20	18.2	15.9	17.5	17.6	21.4	14.7	16.1	17.4	17.5

The most striking reflection to be made upon the table, and the facts it represents, is that there has been a small though evident reduction in the general proportion of science taken to the entire average course. This notwithstanding that public sentiment, the associations of the elective principle, and the local influence were strongly favorable to the largest cultivation of such fields of knowledge.

With this in mind then, let it be also remembered that the earlier curriculum already included much of physics, often under the name of mechanics, and chemistry; somewhat extensive—for that day—and popular courses in geology and mineralogy, a little, very little, zoölogy, and less of botany.

Chemistry has, upon the whole, about held its own, constituting for forty years from 4 to 8 per cent. of the course. (The method of studying and presenting the subject has been revolutionized.) Much of physics has been set off to schools of science and technology, and, in the arts course, has been reduced by nearly one-third. The proportion of botany has been doubled. The principal change, therefore, as might be expected, has been a growth in the biological sciences. This increase has been taken chiefly from physics, though largely, also, from geology—a department that has suffered no little neglect through most of the period under discussion.

Even this, however, does not fairly state the case of the sciences. Of the 192 students noted, more (139) elected chemistry than took any other one science. Geology comes next (134), and zoölogy (129) follows third. Physics (113) and botany (107) take the order given. That is, excluding specialists in each subject, the percentage of the remainder who elected work in the physical sciences was 10 per cent. greater than those electing from the biological sciences.

The order given is, perhaps, that of the equipment of the several departments, the fuller appliances inviting patronage. It has already no doubt been suggested that not only the material equipment, but the efficiency of the instruction, the popularity of the professor, the conditions imposed for graduation, and the professional or other prospects of the student are all factors in determining the recognition of a department. That in an institution, however, of thirty or more professors and instructors, eighteen independent departments, and courses offered sufficient to cover twenty years of continuous study, there have been so few apparent indications of neglect or evasion, goes to emphasize strongly the inference that, within the four groups mentioned, the individual preference of the student is the determining factor, after all. How safe a factor it promises to be may be estimated in part from the later study of "major courses."

As appears from the accompanying table, the longer and better integrated courses also were in chemistry, followed closely in order by zoölogy and physics, geology standing lowest.

TABLE E—SHOWING NUMBER TAKING EACH SCIENCE

Year.	*No. of Cases.*	*Geology.*	*Ratio to Total Course.*	*Botany.*	*Ratio to Total Course.*	*Zoölogy.*	*Ratio to Total Course.*	*Physics.*	*Ratio to Total Course.*	*Chemistry.*	*Ratio to Total Course.*
1887	18	10	4.5	15	2.9	14	7	9	3.5	16	4.4
1888	36	25	3.5	25	3.5	21	7.9	26	3.5	34	6.5
1889	32	24	3	22	3.7	21	8.6	14	6.9	20	6.6
1890	32	24	3.1	16	4.8	26	5.6	19	6 7	28	9.1
1891	42	24	2.9	16	4.8	32	3.9	25	5.4	26	6.7
1892	32	17	3.5	13	6.7	15	6.3	20	7 2	15	9
Total.	192	134	3.4	107	4.4	129	6.5	113	5.5	139	7.1

If the inquiry be carried to a comparison of results in successive years, it will be found that in physics, chemistry, and botany there was a uniform gain in the average length of course. In other words, along with more or less of increase in the number of persons electing from the science courses, there appears also a uniform gain in the length of time so devoted to science.[3] In zoölogy, however, notwithstanding an increase in the number of students electing the work, its proportion in the average course after 1889 diminished one-third. That phase of science—the physical—which twenty years ago predominated, still forms the major part of science in the average course. The marvelous growth of the biological sciences is more than equaled by the more frequent choice and lengthened courses in physics and chemistry. Throughout the years, nevertheless, the ratio of science to the total course has remained practically unchanged.

(3) THE HUMANITIES

A similar class of inferences is equally obvious concerning the humanities. The first of these to be developed was that

[3] In geology, it has been already explained, the department has been for much of the period without an instructor, which would account for the evident lack of interest and patronage.

which figured chiefly as political economy, including also, generally, a term or two of constitutional law, sometimes international law, and occasionally a sort of lecture discussion of topics now known as civil government. For a period, also, certain lectures in law were opened to undergraduates, and were of the character to be classed under the general head of economics as then presented. Through the introduction of parallel courses, history was largely increased, and philosophy also, though much later.

TABLE F—AVERAGES IN THE HUMANITIES

NUMBER.	THE HUMANITIES.	TRADITIONAL COURSES.				ELECTIVE COURSES.							GENERAL AVERAGE.
		Misc.	1880.	1881.	*Aver.*	1887.	1888.	1889.	1890.	1891.	1892.	*Aver.*	
1	History....	4	8.6	9.8	8.3	10.7	8.6	12.3	10	10	10.4	10.5	9.4
2	Sociology..	4.6	5.4	2.9	4.5	3.3	4.2	5.1	6.6	7.5	5.1	5.3	5
3	Philosophy.	3.2	3.2	8.7	4.4	6	5.4	6.9	4.5	4.7	4.8	5.4	5.1
4	Pedagogics.					2.1	1.7	3.1	3.3	4.2	4	3.1	
	TOTALS....	11.9	17.9	21.3	17.1	22.1	20.1	25.5	23.1	27	24.4	24	21.5

The entire department represents now an aggregate of forty-two terms of work offered (and given every year), in the field covered less than twenty years ago by a half dozen terms at most. Indeed, on the side of its enlargement, no phase of the course better represents the great change that has taken place than that called here the humanities. The study of the forces of civilization, the political and social conditions of the ancient nations, all special and local histories, the two entire departments of American history and pedagogics, and most of what is included in that of economics and social science, are positive additions to the curriculum of a generation ago only. Notwithstanding which, through the options allowed to students, the proportion of the humanities in the average course has not quite doubled. Greater than elsewhere, the increase is still small.

Throughout the present period, also, history has been first of this group of subjects, both in the number who elect its work—174 out of the 192—and in the proportion it bears to the total course—11.3 per cent. Philosophy seems next in popularity, that is, most generally chosen, though the proportion of sociology in the average course was nearly one-fourth greater. Fifty-two per cent. of all had more or less work in pedagogy.[4]

The large development of the entire group, the extension of its subject-matter, and the reform in methods of treatment mark the greatest change perhaps growing out of the present policy. The change is not all due to this factor alone, but rather to the conditions and movements of which the Elective System is itself a part.

TABLE G—NUMBER TAKING EACH OF THE HUMANITIES

Year.	*No. of Cases.*	*History.*	*Per Cent. in Total Course.*	*Sociology.*	*Per Cent. in each Total Course.*	*Philosophy.*	*Per Cent. in Total Course.*	*Pedagogy.*	*Per Cent. in Total Course.*
1887	18	18	10.6	12	4.9	15	7.1	9	4.1
1888	36	35	8.6	19	8	27	7.2	13	4.7
1889	32	27	14.6	22	7.4	24	9	16	6.2
1890	32	29	11	19	11.1	24	5.9	18	5.9
1891	42	37	11	29	10.8	28	7	26	6.7
1892	32	28	11.9	12	13.6	14	11.1	18	7.1
TOTAL,	192	174	11.3	113	9.3	132	7.9	100	5.8

MAJOR COURSES

As showing in yet another way the relations of the several lines of work and their acceptance or rejection by students, the accompanying table of major courses is presented.

In the first column is given the proportion which each subject bears to the total course of the 192 students whose records are taken. Based upon the numbers of the second column, showing the number of graduates in each subject specified, are the figures of the third column indicating the ratio of the specialty—the chosen major subject—to the total course of those having the same major subject.

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[4] One of the conditions, it will be remembered, under which this study has been made required the exclusion of those who entered from the State Normal School. As a majority of these take their major subject in the department of pedagogy, the record of this department is materially reduced.

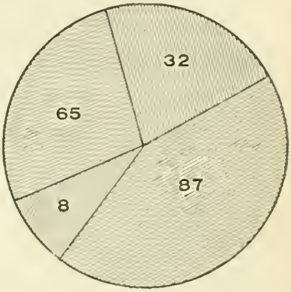
TABLE H—DISTRIBUTION OF MAJOR COURSES

No.	*Subjects.*	*Ratio of Each to Total Course.*	*No. Graduating in Each Department.*	*Ratio of Each to Total Course.*
1	English......	12.8	18	29.4
2	Greek...............	8.9	33	30.8
3	Latin...........	9	4	29.2
4	German.	13.4	25	30.5
5	French....	5.6	7	15.7
	TOTAL, LANGUAGE..	47.6	87	29.5
6	Geology.............	2.2	1	15.4
7	Botany....	1.9	3	19.6
8	Zoölogy......	3	6	27.8
9	Biology......	1.9	3	20.6
10	Physics.............	3.6	5	23.5
11	Chemistry.	5.1	14	25.3
	TOTAL, SCIENCE....	17.4	32	24.3
12	History.........	10.5	30	24.5
13	Sociology......... ..	5.3	16	25.1
14	Philosophy...... ..	5.4	16	20
15	Pedagogics	3.1	3	20
	TOTAL, HUMANITIES	23.5	65	23.4
16	Mathematics	11.5	8	34.6
	GRAND TOTAL.......	10.0	192	26.9

PROPORTION AMONG GROUPS

It appears that out of a total of 192 graduates, 87 are credited to the language group, 65 to the humanities, 32 to science, and 8 to mathematics. Or that about one-half and one-third, respectively, choose language and the humanities, or an aggregate of a little less than five-sixths; one-sixth science, and the remainder mathematics. Here again there is no indication that any undue or disproportioned advantage has been taken or accrued to science, or that ultra-classical and humanistic education has suffered.

That such showing appears in an institution in which science is made one of the required subjects, and nine-tenths of whose material equipment (exclusive of libraries) is in science, whose president was a man of international reputation in science, and whose curriculum was understood by the public to have been reorganized in the interest of science, lends a significance to the figures which no repetition can enhance. This neither justifies nor dignifies any one department nor depreciates another; nor is it meant to be so used; it only shows that students distribute themselves as to kinds of work on wholly different grounds than those which prevailed under the former regime. Public opinion and established customs and popular professors and a lavish equipment may, and do, and should, exert a certain influence; but some characteristic aptness on the part of the student, and the possession of a definite purpose, and the recognition of opportunity for the accomplishment of coveted results, are far more determining factors.



GRAPHIC ILLUSTRATION OF TABLE H.

Circle = 192 = Total number of graduates, 1887–1892 inclusive, whose entire courses were taken under the elective system.

87=Graduates in Language.
65= " Humanities.
32= " Science.
8= " Mathematics.

PROPORTION AMONG SUBJECTS

Further, of the sixteen minor divisions, including five languages, six classes in science, four in the humanities and mathematics, the largest number of graduates in any one was in the department of Greek, 33; and the second highest in history, 30; the two together aggregating almost exactly twice the total number of graduates in all the sciences taken together. Moreover, the third largest class was in German, 25. Setting these off once more—omitting the English—into two groups, one of which comprises the ancient classics, philosophy, mathematics, and the physical sciences; and another made up of those known distinctively as "moderns," the former group must be credited with 80 students, about 46 per cent. of the remaining 174 graduates, and the "moderns" with 54 per cent. That is, under a clearly marked "open system," where students are left free to distribute themselves as to their major subjects according to their preferences and not after some traditional standard, what have been known as the "disciplinary" studies, and particularly the "ancients," receive an almost equal patronage with the "moderns."

All this, it will be noted, says nothing as to the relative merits of the two classes of studies in the modern process of education, but simply serves to emphasize the fact that the introduction of the "elective" principle has done little—at least in Indiana University—toward revolutionizing the average distribution of college courses. The change has been constructive, not destructive.

PROMINENCE OF THE SPECIALTY

It appears, further, from the same table, that while the proportion of all the specialties chosen to the total course was nearly twenty-seven per cent., that of the languages was two per cent. greater and of science as much less. Or excluding the French, whose graduates passed upon an average of sixteen per cent. of their specialty, and geology and botany, whose graduates had but little more of their major subject, the general average of the language specialty taken was six per cent. more than that in science. Each took his full course, but the excess above the minimum requirement was greater in language than in any other department except mathematics. The highest average shown is in the latter branch; though the highest individual ratio is in Greek. Putting the same relation into *terms*, it stands as follows: Specialists in language spent an average of twenty-six terms upon the languages; specialists in the humanities, eighteen terms upon that group; specialists in science, seventeen terms upon the sciences; and those in mathematics, thirteen terms. That is, each graduate spent full time upon his specialty, and more than four years' time upon the *group* including his specialty, the specialists in language averaging more than twice the time required for a full course.

It may then, I think, be safely inferred that, however the facts be viewed, there is apparent no considerable distortion of the courses selected as major courses, any more than was found in the distribution of the four lines of work to the general student body. If there *be* any abnormal development, however, it would seem that in the humanities and the languages—excluding French previously excepted—students show most devotion to the subject.

PROMINENCE OF LANGUAGE

The special students in science spent more time upon language than upon either of the humanities or mathematics; ten terms upon the former, more than a year above the requirements, and seven terms to each of the latter. The mathematical students also, averaged four full years in language study, two years upon the humanities, and but four terms upon science, one term more than the minimum required. For those who took as their major subject one of the humanities, eleven terms were spent upon languages, almost four full years, and four terms upon science. The special language students averaged four terms each upon the sciences and mathematics; and six terms, or two years, upon the humanities, none of which is required.

The further discussion of the tables must be postponed to a second paper.

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VIII

DISCUSSIONS

COLLEGE ENTRANCE REQUIREMENTS IN ENGLISH

Several articles have appeared of late in educational journals criticising, more or less severely, the New England college entrance requirements in English. Among these the paper in the February EDUCATIONAL REVIEW, by Mr. Henry S. Pancoast, is especially worthy of notice as expressing, in concise form, the greatest objection to the standard requirements, namely, that they "encourage, almost compel, the total neglect of the historical development of literature." In the *Academy* for April, Professor James Morgan Hart advances the same argument, and enforces it with a plea for more scientific teaching in English literature.

There is, doubtless, good cause for these complaints. The agitation is not likely to cease until some advance is made in the direction indicated. But whose fault is it if radical changes are necessary? The preparatory schools have been commendably patient, it seems to me, under the stinging criticisms of the college men, but there are limits to endurance. If changes are to come, the grammar schools must lead the way. The best work, indeed well nigh all the work, is now being done in the higher grades of our secondary schools.

The all-important fact to be considered is that boys come to the preparatory schools almost wholly devoid of any interest in good literature. Their previous training has given them only the rudiments of composition and a smattering of grammar. Their reading has been confined for the most part to books of selections, chiefly of value for drill in vocal gymnastics. Not only have such boys no taste for good reading, and very naturally too, but a positive dislike for what is best in books dominates them. In addition to this, the average American boy sees no especial reason for studying English at all; he feels pretty certain that he already knows enough of it. There is much other work to be done, and all of it to him seems of much greater practical importance than the study of his mother tongue and its literature. Such pupils, no matter what may be their age, are not ready for the scientific study of literature as defined by Professor Hart; much less could they comprehend its broader historical relations.

The first element of success in any study is that the pupil shall be interested in it. Without a living, healthy interest, or "liking," the work must be perfunctory and unsatisfactory. It is one thing to tell a college student that "he is not asked to like, but to understand," but quite a different thing to get a schoolboy to understand unless he "likes." The prerequisite condition of success in literary study is a thorough understanding of the subject. It would be difficult to conceive of more dreary and profitless labor than Milton or Shakspere studied by set rules. Few boys, however, on entering a college preparatory class can even paraphrase acceptably. What they find in books is something apart from and foreign to themselves. It takes no hold on them, and therefore has no influence. I know very well that this is a gloomy confession, but I believe my testimony is sure. In my own experience, which has been almost entirely with boys over fifteen years of age, I find very few acquainted with any branch or period of our literature; and the great majority scarcely have a passing acquaintance even with our most popular modern authors. So far as they have read at all it has been mainly of a "light," or doubtful, character. A respectably bound book is to many an object of grave suspicion. That such boys can be taught in an average course of two or three years to enjoy good reading, and to take pride in all their literary work, is the solace and reward of the teacher. It can be done, but I doubt if the "great masters" at first would contribute to it.

There is much in our literature that has really no place in time—it is for all time. Nursery tales, stories of adventure, and romances have each a counterpart in a boy's intellectual development. The limits of each are well defined. The skillful teacher will select at each period that which will best contribute to the needs of the course, and, at the same time, interest the pupil while leading him on to better things. Kingsley's *Heroes*, Dr. Brown's *Rab and His Friends*, *The Wonder Book*, *Tom Brown's School Days*, *Stories from Homer*, *Westward Ho*, *The Tale of Two Cities*, and others of a similar nature have been found well adapted to introductory purposes. Such a course, consisting of eight or ten masterpieces a year, can be planned to cover all the standard entrance requirements. It will carry the pupil, too, by easy stages, from comparative ignorance to a very creditable understanding of good literature. Not a few boys, I am disposed to believe, would get an abiding love for what is best in books, as opposed to all that is low and degrading. This plan, I admit, fails, in the main, to provide for much of the historical treatment, but, should it be desirable, a place could easily be secured for it toward the end of the course. The breadth and quality of the work is conditioned only by the time devoted to it.

The one serious objection to all this is that it is mainly elementary. The greater part of it should be done in the grammar schools, and, I suspect, it could be done there with better results than are possible with older pupils. But, so long as it is not done, and the colleges insist on their present requirements, the extra load must be borne by the preparatory schools. Did not the New England College Commission have some such state of affairs, or worse, in mind when they devised the present system? I fancy that they appreciated the practical difficulties surrounding them, and that the range of subjects was intended to be wide enough to suit the various requirements of New England schools. It is only those schools that aim to do a minimum of work in English—the actual requirements and nothing more—which will find themselves seriously hampered by the present system.

Any selection that could be made by a commission or an individual would scarcely satisfy all parties. It is possible that the New England requirements could be bettered. It may be that they have already outgrown their usefulness; but, in any event, the changes to be made should be dictated by experience rather than by theory. Judged by their fruits, the standard requirements are worthy of much commendation. If, in the future, more stress is to be laid on the scientific teaching of literature, great caution should be exercised that it does not engender dislike for all that is distinctively good in books. The true scientific spirit, it seems to me, would not distinguish between the good and the bad; so long as cause and effect held their proper relations to one another, the conditions are satisfied. Literary study, I hold, is concerned with something more than mere facts. In a life already teeming with scientific ideas, it is surely all the more necessary to develop the æsthetic side of a boy's nature. The whole man is of greater consequence than the mere intellect.

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HIGHER EDUCATION IN ARKANSAS

In the February number of the EDUCATIONAL REVIEW a very interesting article by Professor A. M. Comey, on "Growth of the Colleges of the United States," contains valuable statistics and encouraging deductions. As the number of institutions to be considered is large, and their catalogues are often unsatisfactory both in classification and curriculum, the labor and care required to obtain the condensed tabulated results can hardly be appreciated. Having so many difficulties with which to contend, Professor Comey is to be congratulated that he has been able to offer figures approximately correct.

However, as, in the West and South, many new colleges are springing up and others which were only preparatory schools now do more or less collegiate work, it would not be strange if, even in the State and United States reports consulted, these institutions did not appear, and consequently were not reached by the letters of inquiry sent out. I am quite sure that these facts account for the meager showing made by Arkansas in the article referred to, and believing that the writer will welcome corrections, especially as they make his favorable conclusions still stronger, I add the following information regarding Arkansas.

As the catalogues of several Arkansas colleges did not classify their students, I wrote to the presidents of such colleges not included in the article, asking the following questions: "During the scholastic year 1890–91, how many male students in your college were pursuing studies more advanced than English grammar, algebra, Cæsar, and Vergil?" and "Did you receive a letter of inquiry from Professor A. M. Comey?" To the latter all replied negatively; hence my inference seemed to be correct. Nearly all furnished the statistics desired. Several colleges have a low standard of admission, but, by counting only students who are in classes higher than those mentioned, a fair estimate is made. No statistics for preceding decennial years are given, but, as there were few genuine colleges, the number of college students must have been small.

PROFESSOR COMEY'S TABLE.

Arkansas University	100
Little Rock University	10
Philander Smith	9
Total	119

CORRECTED TABLE.

Arkadelphia Methodist (Methodist, South)	9
Arkansas College (Presbyterian)	35
Arkansas University (State)	100
Hendrix College (Methodist, South)	40
Little Rock University (Methodist, North)	10
Ouachita College (Baptist)	50
Pea Ridge College (Disciples)	13
Philander Smith (Colored)	9
Searcy (Undenominational)	13
Total	279

While the above shows our institutions in a better light, still the number of collegiate students is lamentably small; but several facts must be considered, if the interest of our people in higher education is to be judged fairly.

First, as our colleges are young and comparatively unknown outside of the State, they receive few students from other States; all, or nearly all, of the 279 are Arkansas boys. Second, as many of our people came from the older States and were educated there, they are strongly attached to the old colleges and continue to patronize them. At least one hundred Arkansas boys are in trans-Mississippi colleges. Third, all of our colleges have preparatory departments connected with them, and the relation is so close, and the association of college and preparatory students so intimate, and so many preparatory students pursue collegiate studies in part, that the benefits and influence of the college are widely diffused. Fully fifteen hundred boys are in college preparatory departments. Though many of these will never complete their courses, and although in scholarship they will not generally rank with students of Eastern academies, yet they have imbibed the college spirit and throughout life will be identified with higher education, because they have lived in its atmosphere. Fourth, during the last five years, principally within the last three years, the following amounts have been invested in college buildings and grounds:

State University Dormitory	about $20,000
Cumberland College	20,000
Arkadelphia Methodist	45,000
Central Female	30,000
Galloway Female	35,000
Hendrix	55,000
Ouachita	40,000
Quitman	15,000
Searcy	45,000
Total	$305,000

Considering the fact that our people are poor (very few men in Arkansas are worth over $100,000), the investments in permanent improvements are creditable. It is to be regretted, however, that the work of endowing has scarcely begun, Cumberland with $30,000 and Hendrix with $10,000 being the only endowed colleges in the State. Yet several of these institutions have competent faculties, offer good collegiate courses, and do honest work, as is attested by the ability of their undergraduates to enter corresponding classes in Eastern colleges and of their graduates to pursue post-graduate courses in the universities.

Men who are familiar only with well-endowed institutions may ask in amazement how such results are possible. The answer is not far to seek. These institutions are founded upon self-sacrifice, and the students feed on the very lifeblood of the teachers. For the sake of our students men of genuine ability refuse $2000 in well-known colleges, and on $500 or $1000, a bare living, labor among the young men around them. In Arkansas, at present, $100,000 endowment will do more for collegiate education than $1,000,000 in the older States. If, in education, as in other things, men seek the largest returns on their investments, Arkansas educational stock should be the most attractive, as, in my judgment, it will pay the largest dividends.

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IX

EDUCATION IN FOREIGN PERIODICALS

A New Method of Teaching Modern Languages

A. A. M. IN THE LONDON "JOURNAL OF EDUCATION"

"Several masters at Wiesbaden, and some university professors in different parts of the Empire, being discontented with the results generally obtained in the teaching of modern languages in the state schools, determined to see if it were possible to teach a class of boys to talk a language in addition to merely translating from and into German. I had the opportunity of testing two classes, one in the Realschule and the other in the Realgymnasium, and found the results obtained such as to promise a success utterly unlooked for under the old system.

"In the third class in the Realgymnasium I found that boys who were then beginning to study English for the second year were able to grasp the meaning of a story I read over to them twice, and also to answer, in English, questions I asked them on the story in the same language. In addition to this, they were able to answer many commonplace questions, and had evidently a very good stock of words at command. The pronunciation, too, a difficult matter as a rule with Germans, was remarkably good in most cases, and bore witness to extreme patience and fineness of ear on the master's part. In fact, the answers of nearly all, of a class of thirty, were so good that even an uneducated Englishman could not have failed to understand them.

"In the Realschule, where the boys begin to study English sooner, and where the class of boys is generally of a lower standard than in the Realgymasium, I had the pleasure of examining one of the lowest classes. The boys averaged from about ten to twelve years in age, were about twenty-eight in number, and had only studied English a few months. I found they could understand questions I asked them on certain pictures employed by the master, and could answer in very well pronounced English. They also knew the elements of the English grammar, could go through the numerals, tell the hour of the day, and answer some simple questions on such subjects as the weather.

"In both these cases the number of hours for English, per week, was comparatively small, and the number of boys in the class large. Any master accustomed to teaching modern languages, and more especially English to foreigners, will understand that boys able to understand an Englishman, to whose voice they were not accustomed, must have been taught by a very capable master, and under a very good method. It must also be remembered that in all the Prussian state schools only Germans are employed as masters, and very rarely can a man speak a foreign language so perfectly that his pupils would not be at first somewhat thrown off at hearing a foreigner speak.

"So highly has the success of this system been appreciated by the authorities, that two of the principal promoters—Herr M. Walter and Dr. F. Schmidt—have been appointed Directors of Schools. A third one, Dr. Ph. Rossmann, in conjunction with Dr. F. Schmidt, published last September a French Grammar on the new system, *Lehrbuch der französischen Sprache*. Several important schools, both in Germany and Switzerland, have adopted the book, and it has also been highly praised by several professors in the Berlin Normal School.

"According to this 'new method' the pupil must learn a foreign language just as he has learnt his own. That is to say, the pupil must be taught to speak and to think in a language first, and instinctively learn the grammar. He must not be at first taught to compare the foreign language with his own, as regards construction and grammar, and, therefore, translation from one language into the other is to be carefully avoided at first. Then, after he has attained a certain proficiency in the language, and not till then, should the master teach him the grammar, deductively, by calling his attention to *Form-lehre*.

"In a similar way, the various rules of syntax are gradually taught, and, according to the experience of those who teach thus, remain much more firmly fixed in the memory. The usual way of beginning is by taking some large wall picture—*e. g.*, one of those published for the purpose by Hölzel, of Vienna—which contains a moderately large number of objects, and hanging it up so as to be clearly seen by the class.

The master points to an object, say a duck, and, supposing he be teaching English, asks 'What is that?' and then carefully and repeatedly answers, 'That is a duck.' He then asks one of the boys, who replies in the same words, like a parrot. Like a parrot, too, he will probably imitate correctly the sounds made by the master, as he would have no written signs to mislead him.

"The master then writes down on the blackboard the English words used, but in phonetic, and not in ordinary characters. The class is made to write down these and other words that follow, and by the end of the lesson will have acquired some knowledge of simple answers and questions in the third person, the names of a number of objects, and the means of phonetically transcribing them. For the next lesson, all that has been written down must be learnt, and gone over carefully to insure correct pronunciation. Gradually the stock of knowledge is increased, the numerals and the pronouns are learnt, and more complicated questions may be put. After a while the sounds of words, written down phonetically, are carefully explained, and the ordinary orthography is taught.

"The phonetic system I have mentioned is that fixed and agreed on by the Association Phonétique des Professeurs de Langues Vivantes, and is probably the best, as being applicable to all languages, and not unnecessarily difficult. Some may object to the use of phonetics, that it is merely adding to the work to be done. I would reply, let them give it a fair trial, and they will find that the ease of thus fixing the pronunciation of non-phonetically written languages in a boy's memory more than repays the extra trouble. Nor has it been found that the use of phonetics has a prejudicial effect on the orthography of a language, such as English, for instance, for in it, orthography is more a question of eye than ear.

"When the pupils have firmly grasped the names of a good number of objects, they are set to write exercises on them, *e. g.*, to write down what certain objects are doing, how many there are, what color they are, etc., and, later, to ask the questions on paper. Of course during class-time it has not been the master alone who has asked the questions orally, but the boys are called up in turn to do so, and they must see they get the correct answers. Also questions relating to objects close at hand are asked and answered, *e. g.*, 'How many windows are there in the room?' 'How many boys?' 'What time is it?' etc. Always, most careful attention must be paid to the pronunciation, or otherwise the time spent is worse than useless.

" Later on, when the pictures have been pretty well exhausted, and the pupils have acquired a certain knowledge of the grammar, and become somewhat familiarized with the simpler forms of the language, the master passes on to short stories. These he makes the pupils read over in class, and explains the new words met with. Then all books are shut, the pupils questioned on the story in the language it is written in, let us suppose in English, and finally some are asked to repeat the story, or perhaps all to write it down. Still later, the master reads a story over two or three times without letting the boys see it at all, and the same system of question and answer follows. In this second part, if the expression may be used, the more difficult rules of the grammar are practiced, and the questions and answers become more complicated, and no longer consist of simple sentences. After this stage has been well traversed, the time comes for going more scientifically—or, rather, more dogmatically—into the grammar, in order to meet the usual requirements of examinations; more time is spent on dictation and composition, and translation may be begun. Care must, however, still be had to prevent, by constant practice, the loss of the facility in speaking that has been already acquired.

" At the end of a course of teaching of this nature, the boys are able to carry on a conversation fairly, and to translate from one language to the other. They have acquired considerable accuracy in expressing themselves, and one does not hear the familiar remark in answer to a correction, 'How stupid of me! I know the rule quite well, but always forget to apply it.' Nor have they, as is so often the case, to begin a conversational course of lessons after leaving the school.

" From my own personal experience I may say that I have tried the system in teaching English in Italy, and found it successful. At the same time it is only right to remark that this method causes more trouble to the master at first, but he soon gets into it with practice, and is well repaid by the progress of his pupils.

" Up to the present time no exhaustive grammar has yet been published in Germany for learning English under this system, but last September the French one above mentioned made its appearance. From it a very clear notion of the system may be obtained. In it are to be found none of the usual sentence-exercises for translation into French or German, and there is remarkably little German at all. There are copies of Hölzel's pictures, and other illustrations, any number of well chosen stories, and some simple French songs, which latter are easily taught in a school where all have to learn singing. Lastly, a plentiful use is made of phonetics, most of the stories being phonetically transcribed on the opposite page."

A SELECTION FROM BOOKS WRITTEN ON AND IN ACCORDANCE WITH THE PHONETIC SYSTEM.

M. Walter, Der französische Klassenunterricht. Entwurf eines Lehrplans, 1888. Marburg, Elwert. 1 m. 20.

H. Klinghardt, Ein Jahr Erfahrungen mit der neuen Methode. 1888. Marburg, Elwert. 1 m. 60.

Le Maître Phonétique. Rédacteur, M. Paul Passy, 6 rue Labordère, Neuilly-sur-Seine. (A monthly periodical, 2 frs. per annum to members.)

W. S. Macgowan, The Reading-Book as the center of Instruction in teaching a Foreign Language.—Phonetische Studien, IV., 1.

P. Passy, Kleines Lesebuch. Firmin Didot. 30 c.

P. Passy, Livre de Lecture (two parts). Firmin Didot. 20 c. and 50 c.

F. Lange, Hey's Fabeln für Kinder, with phonetic transcription. 1888. Whittaker. 2s.

J. Storm, Französische Sprechübungen. 1888. Velhagen und Klasing, Leipzic. 1 m. 80.

Ph. Rossmann and F. Schmidt, Lehrbuch der französichen Sprache auf Grundlage der Anschauung. 1882. Velhagen und Klasing. 2 m.

Hölzels Wandbilder. Each from 2 fl. 50 to 7 fl. 25. Ed. Hölzel, Louisengasse 5, Vienna, IV.

X

REVIEWS

Aristotle and Ancient Educational Ideals.—By THOMAS DAVIDSON. The Great Educators' Series; edited by NICHOLAS MURRAY BUTLER. New York: Charles Scribner's Sons, 1892, pp. xiii, 256. Price, $1.00.

This book must have been immensely difficult to write. Its author has not chosen to adopt what may be called the conventional mode of treatment. He has not given us a mere condensation and arrangement of the educational teachings of Aristotle, combined with some biographical material and a modicum of exegetical and critical commentary. Had the book been written after this plan, the author's task would have been an easy one, and the book itself would still have served a useful purpose in the hands of the student and the general reader; for while such a collection of Aristotelian dicta exists in the German of Kapp and others, there is, so far as the writer recollects, no similar work in English. But Mr. Davidson undoubtedly had in mind the fact that his book is, in a certain sense, an introduction to the series as a whole, and that, in consequence, a much broader view and a much more comprehensive treatment would better serve the purpose of the editor. Hence it is that the sub-title perhaps more accurately describes the contents of Mr. Davidson's interesting book; since, as he states in the preface, it has been his aim to expound Aristotle, first of all, in his relation to ancient pedagogy as a whole, by "tracing briefly the whole history of Greek education up to Aristotle, and down from Aristotle, to show the past which conditioned his theories and the future which was conditioned by them."

It is the comprehensiveness of this design that must have made its execution difficult. Out of the embarrassing wealth of material that lay at hand, to grasp the essential, to reject the irrelevant, and to elucidate the theme so as to show with distinctness the interdependence of the educational development of Greece and its political and social system—this makes no small demand upon the writer. The plan of the work is answerable also for the fact that the actual consideration of Aristotle himself occupies only a fifth of the book—only fifty pages out of two hundred and fifty. But this subordination of Aristotle is, in reality, only apparent. He is, as already stated, the central figure in the story of Greek education; the aims of ancient intellectual life are presented in the light of Aristotle's exposition; its fundamental ideas are expressed in terms of Aristotle.

Mr. Davidson has done his work extremely well, especially in his preliminary analysis, in the succinct and lucid division of his subject, and in his wise avoidance of unnecessary detail. Describing, with singular clearness, the character of Greek pedagogic ideals, the condition and objects of Greek education, and finally the influences that modified it, he proceeds to treat it by periods. Adopting the division into Hellenic and Hellenistic, under the former head he sketches briefly the "old education" of early Greece—Æolic, Doric, and Ionic—and with more detail the "new education" in the brief but brilliant period that begins with Socrates and ends with Aristotle. Then, taking up the second division, he discusses the educational system of Rome as a modification and outgrowth of the later Greek, outlining the rhetorical education elaborated in Quintilian's treatise, and adding a slight sketch of Plotinus as representing the later Alexandrian influence and as being "the only truly great original thinker after Aristotle."

Mr. Davidson is at his best in giving brief and brilliant summaries of facts whose substance it is almost impossible for the general reader to extract from the bewildering mass of exposition and discussion found in most works that profess to afford an insight into the Zeitgeist of any particular period; and of which one is so often tempted to complain that he cannot see the forest by reason of the trees. Here, on the contrary, the writer has his principal subject well in hand, and has the gift also of imparting to the reader much of his own clearness of vision. The first few chapters of the book are models of vigorous and lucid condensation of fact, flashed before the mind in the smallest possible space. Nor can anyone use against Mr. Davidson the well-worn German adage to the effect that "Klarheit ist nicht immer Wahrheit"—a saying that has been so often dragged forth to the defense of muddled maundering. Excellently selected, too, are the brief quotations prefixed to the chapters, giving in a few terse and often epigrammatic words, the substance of many pages of exposition.

The portion of the book which one would feel the most disposed to criticise is that in which the "Hellenistic" period is discussed. Mr. Davidson evidently writes of the early teaching, and of Aristotle, with an enthusiastic love of his theme. It is almost equally clear that his interest flags when he leaves Grecian soil and turns to the thought and intellectual life of Rome. One feels, in reading his estimate and analysis of Quintilian, that the writer is performing a purely perfunctory task, which he regards as necessary but not agreeable, and that the "rude conquerors" of Greece are of importance to him only because Greece condescended to lead them captive. This, which is the conventional attitude of the Hellenists, somewhat impairs the interest of the last few chapters; and, in particular, the analysis of the first book of the *Institutio* is little more than a transcription of Mr. Watson's summary. It is to be hoped that this volume will not be the only one of the series to touch upon the transmutation of Greek thought under Roman influence that wrought so powerfully upon Christian philosophy in the mediæval schools. A volume upon Boethius or upon Cassiodorus would be most fascinating reading if written so as both to present the educational life of that shadowy age which lies between the old and the new, and to narrate the labors of the men who, like the two just mentioned, paved the way for the great humanistic revival, and made the "age of Bracciolini" possible.

A less obvious criticism is suggested by the scant space given to the influence of Alexandria upon Rome and Roman education; but it is of course allowable to regard this influence as in the main a purely literary one, and in any case, Mr. Davidson probably concerns himself as little with Rome as with the details of the externals of ancient life; a rather amusing instance of which is found in his description of an ancient schoolroom, where, in passing over the arrangements with the lightest possible touch, he surprises us by suddenly descending to unexpected details and carefully noting that the benches were washed once a day, "probably with sponges."

The typography and general appearance of the book are excellent. Of minor slips and inaccuracies very few are noticeable, and these are of slight importance. One regrets to find, however, the sculptor Dipœnus figuring as

Dipœnis, and Quintilian's work cited as the *Institutio Oratorica*. On page 251, the reader is referred to Becker's *Gallus* for an account of *Greek* education; and one is led to infer that Mr. Davidson has not read all his Aristotle with equal care, since, if he had recently perused a certain passage of the *Rhetoric* (II: 12–14), he would not have ascribed to Solon the quotation which introduces his initial chapter.

The value of the book is much enhanced by an extremely interesting Appendix on the Seven Liberal Arts, in which is collected a great deal of curious information, a portion of which is taken from a paper by that ingenious scholar and graceful writer, Professor A. F. West.

H. T. PECK

COLUMBIA COLLEGE

The State Last. A Study of Dr. Bouquillon's Pamphlet, "Education: To whom does it belong?" With a Supplement Reviewing Dr. Bouquillon's "Rejoinder to Critics."—By Rev. JAMES CONWAY, S. J., Canisius College, Buffalo, N. Y. New York and Cincinnati: Fr. Pustet & Co., 1892, pp. 116.

The author of this *Study* is recognized as a competent authority on the subject of the family, the state, and the Church in regard to education. A theologian, thoroughly versed in the teachings of moral theologians, Councils and Popes, in the history of education in Europe and the United States, in the political constitution and history of our country, and in the logic of common sense, he is especially fitted to discuss Dr. Bouquillon's politico-theological pamphlet. The *Study* shows the author to be not only a master of his subject, but also an agreeable writer, of a delicate wit, good-tempered, moderate, direct, and frank. Page by page, line by line, and often word by word, Dr. Bouquillon's arguments, authorities, method, and "some details of his procedure" are conscientiously examined. The results of this examination are not too strongly stated by the author on pp. 76, 77. He writes: "We have followed the Doctor patiently and impartially; we have studied the sources from which he gathered his materials; we have compared his references as far as it could be deemed necessary or relevant; we have carefully weighed his arguments and have come to the conclusion that far from producing anything that could contribute to the solution of the educational problem in this or any other country, he has only involved it in new difficulties, at least for this country, by putting before the public a collection of principles, partly false, partly vague and ambiguous, and altogether inapplicable to our circumstances, since they presuppose conditions entirely different from ours. We have found his argumentation to be loose and fallacious; his authorities misconceived, misinterpreted, or misapplied; his methods illogical; the details of his procedure inexact and inconsistent. He has not been able to muster a single argument to prove the strict, special, and proper right of the state to educate; with this right the whole theory of state education falls to the ground."

Not the least interesting portion of Father Conway's book is that wherein he examines Dr. Bouquillon's authorities. The Doctor had cited not only himself, St. Thomas, Suarez, and Leo XIII., but also Taparelli, Zigliara, Hammerstein, Cavagnis, and Sauvé. All of Dr. Bouquillon's authorities, other than himself, are put face to face with him in the *Study*. One by one they repudiate the Doctor's opinion. As to Monsignor Sauvé, "who was papal theologian at the Vatican Council, and sometime Rector of the University of Angers, in France," Father Conway writes: "Had we been able to possess ourselves of this work (*Questions religieuses*) sooner, it would have thrown much light on the dark points of Dr. Bouquillon's brochure—his somewhat tortuous disposition, his method, the many apparent inconsistencies, the meaning and import of most of the authorities he quotes; but we had the bad luck to find this work last of all, though it is the very first work a student of Dr. Bouquillon's pamphlet should read. The veneration of Dr. Bouquillon for Sauvé goes to the utmost limit of literary propriety. He adopts the same division, the same method, uses the same authorities, and even translates many passages almost *ad literam*—and sometimes, we must confess, without due discrimination." . . . . "The fault we have to find with Dr. Bouquillon's treatment of his revered friend Sauvé, however, is not so much for what he has taken from this excellent author, but rather for what he has omitted. Had he given us Sauvé's treatise *pur et simple*, with all the faults we have referred to, he would have conferred a favor on us and a benefit on Catholic education; but he has given us Sauvé's concessions to civil government without giving us Sauvé's demands for family and Church, and without giving us Sauvé's uncompromising conditions" (p. 36).

It is not alone as a piece of scholarly criticism alone that this *Study* is useful. As a precise, thorough exposition of the Catholic teaching on education, it is invaluable. The character and extent of the rights of parent, Church, and state in regard to education are defined with exactness. Sound argument and apt illustration abound. A fact almost wholly lost sight of, and which the author recalls, is that the American Catholic asks only for the natural rights of man. As an American the Catholic should ask for no more, and is entitled to no less. To the current discussion of the place of the state in education, the most finished and important contribution that has been made is Father Conway's.

JOHN A. MOONEY

NEW YORK

An Introduction to the Study of Phonetics (English, French, and German) with Reading Lessons and Exercises.—By LAURA SOAMES. New York: Macmillan & Co., 1891, pp. xxiv, 249. Price, $1.50.

The growing importance of the study of phonetics, not alone for advanced scientific work in philology, but also for purely practical purposes in the more primary instruction in all languages, is each day more and more felt. This is particularly true in the case of the study of modern tongues in connection with English, and it is from this practical standpoint that the present book sets out.

In a Preface, which is written for the author by Miss Dorothea Beale, the purpose of the book is briefly given. It is "to give shortly and clearly an idea of the formation of the articulate sounds of the three modern languages most studied in our schools." By the copious examples adopted as illustrations, it may be added, the book incidentally brings into striking prominence some of the anomalies of our English spelling, and imparts more than one useful lesson in that respect.

The author herself tells us (p. 4) that the work is the result of long experience and preparation in the study of English sounds. The authorities, Sweet, Skeat, Ellis, Evans, Vietor, Passy, Schröer, and some other familiar names, are cited as having aided the author by their writings on the subject, or even by personal suggestion. Sievers seems to be missing from the list. The work falls into two parts, each of which is complete in itself. Part I (pp. 1–164) deals with phonetics proper; Part II (pp. 1–85) is a phonetic reading book with exercises.

Some introductory pages contain tables of the phonetic alphabets adopted for English, French, and German. The phonetic arrangement of the consonants and vowels in each of these tongues is given. A couple of clear diagrams are added to illustrate the structure of the organs of speech. In adopting a phonetic alphabet for English, the author has in general followed Sweet's Broad Romic and Evans's Union. The alphabets for French and German, though on the same plan, are original.

The usual description of the vocal organs (chap. i) briefly introduces the real subject. The next chapter (ii), illustrating the various ways in which our spelling represents the sounds in English, is useful in opening the eyes of the unthinking to some of the anomalies and curiosities in our "orthography." It might interest the layman to see that we employ some dozen or more distinct combinations of letters to represent an ordinary single sound *sh* (š). Thus (p. 14), *sh*, *s*, *ch*, *ss*, *c*, *t*, *shi* *si*, *ssi*, *ci*, *ce*, *sci*, *ti*, *sch*, *che*, *chsi*, *psh*, *sshe*. Some of these curious anomalies, it is true, arise from palatalization in combining a prefix or suffix with a root, thus giving rise to an *š*-sound, or again they may come from foreign tongues. As examples of the above combinations sounded as *sh*: *sh*e, *s*ugar, *ch*aise, a*ss*ure, offi*c*iate, so*ci*al, vi*t*iate, mo*ti*on, fa*sh*ion, A*si*a, mi*ssi*on, o*ce*an, con*sci*ous, mousta*che*, fu*chsi*a, *psh*aw, A*sshe*ton. When *sch*edule is also used as an example, we must remember that we have to do with an English, not an American pronunciation (shed′-ule).

The regular discussion of the separate English sounds, the consonants first, the vowels afterward, is next taken up (chap. iii). The phonetic alphabet above referred to is here employed. The analysis of the sounds, as a rule, is clearly given. Useful hints, which watchful eyes may catch, are here and there thrown out. Opinions may differ in regard to whether the sound representations are always satisfactory, but they are consistently employed in general, and the practical aim is kept in view. As in the case of "schedule" above noticed, we may occasionally observe certain English, local, or individual characteristics or peculiarities in the author's pronunciation. They are evidently faithfully recorded, and they are instructive as well as interesting in showing also international differences of which we perhaps do not always think. American students will do well to note this throughout the book.

The above chapter on single words, as well as the next (chap. iv) on the combination of words in a sentence, properly emphasizes among other things the peculiarities in the treatment of our letter *r;* familiar examples like *theirs* (dheaz), *fires* (faiaz), *bear up* (bēr), *bear no malice* (bea) are given with full details. Under the division of consonants one can hardly agree in wishing to see the designations "hard" and "soft" perpetuated; the author, however, recognizes "voiceless" and "voiced." It were better to have adopted them. Questions of accent, quantity, and the like receive some attention.

The chapter (v) that follows, contains a list, resembling the familiar appendix of a dictionary, giving the pronunciation of loan words in English. The writer (p. 86) upholds the practice of anglicizing foreign words as far as custom will permit. The list given includes most of the familiar foreign expressions. The following selections will illustrate the system of treatment: *adagio* (adaajyo), *bona fide* (*bowna* faidi), *bon voyage* (*bon* vwàyáazh, *bon* voiáazh), *Eiffel* (aifl).

A chapter (vi) is devoted to hints for teachers. It contains fruitful suggestions for those who are teaching children to spell. This section concludes the portion of the work that is strictly devoted to English.

The remaining pages (pp. 120–164) of this part of the book are devoted respectively to French and German from the phonetic standpoint. The method of treatment is similar, though of course not so extended as in the preceding.

Part II is devoted simply to reading lessons and exercises. An idea of the system of sound representation may best be obtained from a selection. The familiar John Gilpin of our childhood appears (p. 44) as

Jon Gilpin woz a sitizn'
  Ov kredit and rináun
A treyn-bænd kæptin iyk woz hiy
  Ov feymas Lœndan Taun.

The book is what it claims to be—an "Introduction." It is a book rather for higher school work than for the advanced phonetist. It should prove thoroughly useful in giving suggestions also to educators who have at heart the question of English spelling and pronunciation.

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Primary Manual Training: Methods in Form Study, Clay, Paper and Color Work.—By Caroline F. Cutler, of the Lucretia Crocker School, and Special Instructor in Manual Training to the Primary Teachers of Boston. Boston: Educational Publishing Co., 1891, pp. ix. 130.

This book, as is stated in a brief publishers' note, is but a transcript of the regular work done by the author in her own school. It has therefore the merit of suggesting only what has been done, and, as a matter of course, what can be done—it is practical. It consists of a series of specific directions, given to the primary teachers of Boston, on clay modeling, paper-cutting, paper-folding, stick-laying, drawing, the elements of design and color. The lessons begin with the type forms, the sphere, the cube, and the cylinder, giving directions for modeling them in clay, and for expressing the "facts" by means of paper-cutting, skeleton models, paper-folding, and drawing. Then follow directions on teaching the elements of color; but this subject is treated only in so far as it is needed, in connection with form, to teach the elements of design. This is followed by the development of the square, the right-angled triangular, and the equilateral triangular prisms. Then comes a series of lessons on paper-folding that deal with the facts of the forms thus far studied. The study of the ellipsoid, oblate spheroid, ovoid, the cone and pyramid, together with a few pages of directions on construction work in cardboard, forms the remaining part of the book. The course outlined is in every essential point identical with the course followed in form study and drawing in the best schools. It is therefore a very safe book for teachers to follow. Its directions are all clear and specific; the teacher who could not follow them would have to be stupid indeed. It is meant as a help to beginners in the work, and therefore omits nothing which such persons are likely to need. Preceding the body of the book, there are five pages of "General Suggestions" on the preparation and handling of the materials used and on the development of the type forms, followed by an outline in detail of the steps in the work of developing the sphere and the cube.

It would have added much to the value of the book if the author had added, to her explicit directions as to what to do and how to do it, a clear statement in each case of the specific purpose of the exercises. She does not discriminate between the different modes of expression, as to their purpose and pedagogical value. For example, on p. 14, after the children are supposed to have modeled the cube in clay and to have observed the "facts" of the form, the suggestion is made, "The cube should also be formed of paper." Nothing is said to indicate that this mode of expressing the cube emphasizes the "facts," and therefore impresses them, in a way that modeling it in clay does not. The unsophisticated teacher might quite naturally ask, "What is the use of doing again by means of paper what I have just done by means of clay?" She would naturally suppose that the author meant to suggest two ways of doing the same thing for the sake of variety. On p. 17, the suggestion is made, in like manner, that "A skeleton cube can also be formed of sticks and peas, by placing the sticks to represent the edges of the cube, and joining the corners with peas." The word "also" in the sentence does not imply that some other way of making a skeleton cube has been suggested, but it means, as the context shows, that a cube can also be expressed in the form of a skeleton model. Such language would naturally lead the teacher to infer that this was merely a third way of doing what she had already done with clay and cardboard. As many special teachers of form and drawing do not clearly see the specific purpose of skeleton models, it is not safe to assume that the teachers for whom this book is intended need no guidance on this point.

Taken as a whole, the book will prove a very valuable aid to teachers, especially those in rural and village schools where there is no special teacher of drawing to help them in their work. There is probably no other manual quite so helpful as this for teachers so situated, and superintendents of rural districts will find it a wise outlay of the scanty school funds to place a copy of this book in every school. For teachers in cities in which form study and drawing are well taught, the book is too elementary and brief to be of great help. This must in justice be said in spite of the fact that it was made, apparently, more particularly for the use of the primary schools of Boston. Boston has been noted for everything that is good except drawing in its primary and grammar schools.

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XI

EDITORIAL

"We are opposed to state interference with parental rights and rights of conscience in the education of children, as an infringement of the fundamental democratic doctrine that the largest individual liberty consistent with the rights of others insures the highest type of American citizens and the best government."

This rather Sphinx-like utterance is found in the platform of one of the great political parties in a Western State distinguished for its excellent educational institutions and the high and law-abiding character of its citizenship. When interpreted, the passage quoted means that its framers are opposed to a compulsory education law. Its terms are sufficiently vague and general to provide hiding-places for wary politicians. but its intent is clear.

The American people cannot shuffle with the question of compulsory education much longer. They must settle it one way or another, and that soon. The empty bombast of "pointing with pride to our unsurpassed system of public schools" has played its part. Our provisions for public instruction are admirable, to be sure; but ignorance and vice and low moral standards in public and private life are playing havoc with some of our much extolled "free institutions." European critics have pierced our armor of pride and self-assertion, and are asking searching questions as to why certain things occur here in spite of all our advantages.

Character, not intelligence, it may be said, is the remedy. This is indisputable; but unless history and human experience are strangely misleading, character flourishes on a soil of knowledge, not on one of ignorance. The State's own safety is bound up with the character, and so in a measure with the intelligence, of its citizenship. To secure a minimum of both, so far as a system of public schools can do so, is the plain and accepted duty of the State. There is no natural right to be ignorant or vicious that limits the exercise of the State's power in securing this minimum. Compulsory education is, therefore, the logical consequent of universal suffrage. If the American people propose to allow religious feeling, or any other force, to set aside this principle, they should do so understandingly, with their eyes open to the consequences. Compulsory education should not, and need not, trench in the least on any parental right or any religious conviction. Anti-religious public education is no more a necessity than sectarian proselyting at State expense. These facts should be preached incessantly from the platform and by the press. No cowardly attempt to avoid a direct argument on the school question should be permitted. Meet it fairly and squarely, not with passion or partisanship, but with argument.

On the same day that the compulsory education law of Ohio was pronounced constitutional by the State Supreme Court, the decision of the Roman authorities concerning Archbishop Ireland's plan of fusing the parochial and the public schools was received by cable. It proves to be a most important document, not only for the Roman Catholic Church but for the American public school system. For twist and turn its guarded phrases and technical terms as we may, Archbishop Ireland is sustained, and his liberal, patriotic, and thoroughly religious policy is to be permitted to continue. It is true that it is an experiment, but it is a most hopeful and courageous one for the American common school, and all good citizens will support it by every means in their power.

For some time past the New York Board of Education has not been much in the eye of the public. The troublesome reformers in the Board were quietly replaced, as their terms expired, with less ambitious spirits. Lately, however, a new member, who forgot that he ought not to ask any questions, made some personal inquiries regarding the proficiency of the public school pupils in the use of the English language. He was disappointed at the result, and said so. For this serious breach of etiquette he was frowned upon, and his motions relating to the matter were sent to a committee that has for years enjoyed an enviable reputation as a pigeon-hole. These actions were not without an effect, however. They at least roused another honorable member to active protest against action looking toward the establishment of kindergartens in connection with the public schools, on the ground that they would "take children from their cradles and cram grammar down their throats." This use of grammar as soothing syrup has certain elements of novelty about it; the average observer will probably wonder at its having been first suggested in so conservative and intelligent a body as the New York Board of Education is reputed to be.

The report of the Board of Supervisors of the public schools of Boston for 1890–91 has just been issued. It was prepared by Mr. Ellis Peterson, and is worthy in many respects of most careful study. Dealing, as it does, with recent changes in the Boston course of study, and treating with considerable vigor of the reforms in the grammar school curriculum proposed by the New England Association of Colleges, it must be regarded as a most timely and able contribution to the discussion of a controversy the decision of which is vitally important to progress in public school education. Boston has always shown herself ready to adopt educational reforms when their usefulness has been well established; and it is not, therefore, surprising to find that most conservative body, the Board of Supervisors —a body that is unique in public school administration in this country—while making a hard fight against some of the suggested reforms, accepting others, either in whole or in part, and contending that still others were long since incorporated in the course of study.

The two most obvious concessions to the reform movement are the reduction in the time devoted to geography and the stress laid upon the study of natural science. Formerly, from two to three hours per week for six years were devoted to the study of geography. Now, the study of geography is confined to five years, being dropped from the last year of the grammar school course, while the time per week is not increased. This in itself is a very great concession, even though no attempt appears to have been made to teach physical geography in connection with natural science and political geography in connection with history.

Under the new course of study, an hour and a half per week for five years, and two hours per week during the last year, of the grammar school course, are devoted to elementary science. Notwithstanding Superintendent Seaver's admission in his last report that the observation lessons in the Boston schools, except in rare cases of combined skill and enthusiasm on the part of the teacher, are to a very great extent a failure, the Boston school authorities have evidently determined to persist in the attempt to teach natural science in the common schools. The Supervisors, however, raise a note of warning that all teachers of natural science would do well to heed. "The educational value," they say, "of science work in the grammar schools must be great, provided the method of work is largely observational, inductive, and systematic. If the method be in great part deductive, although illustrated by examples or experiments, or if the subject be presented inductively in the haphazard style, the sooner the time be used for other purposes the better will it be for the pupils." While all will not agree with the theory that the utility of science-teaching depends exclusively on the method of presenting the subject, yet no one will deny that the right method carries with it very great advantages. It is too much to expect, however, that the best methods of teaching natural science will be universally, or even generally, adopted, as long as the subject is not taught by specialists.

A strong plea is entered by the Supervisors in favor of specializing the work of teachers during the last three years of the grammar school course. This change, as was pointed out by Mr. Maxwell in his article on "The Grammar School Curriculum" in the EDUCATIONAL REVIEW for May, is the necessary condition of introducing any radical reform. Speaking of the difficulty of securing a sufficient number of skillful teachers of foreign languages in the grammar schools, the Supervisors say: "This difficulty might, in time, be met, if the departmental plan of teaching were introduced into the three upper classes of the grammar schools. This change in organization would be of immense advantage to the schools, if only able instructors were placed in charge of the departments. There is no doubt that skill, even to the degree of expertness, could be acquired by a teacher who had received a good general training, and who then, following his bent, devoted his time and energy to one department of study and teaching. The plan of requiring one instructor to teach all the subjects of study pursued by one class in one year, results usually in scattering his energy and sometimes in expending it on subjects that he, either by nature or by lack of training, is not qualified to teach. Think, too, of the waste of a pupil's time, who, in six years, is under, at least, six different teachers of penmanship, no one of whom may be expert in teaching that subject. The waste is likely to be especially great in drawing, in singing, in elocutionary reading, and in a part of the subjects of elementary science; nor, in some schools, is the waste small in geography, history, and arithmetic." If the departmental plan of teaching were adopted for the three upper classes in the Boston grammar schools, the Supervisors would probably find that all of the reforms proposed by the New England Association of Colleges are possible.

Another striking concession to the reform spirit is the proposition to introduce a foreign language as an elective study. The time-honored custom in Boston has been to take boys and girls, who desire to prepare for college, from the grammar schools at eleven years of age and place them in the Latin schools. It is in this way that President Eliot describes himself as having been "rescued" from the grammar school. The assumption has been that only those young people who meditate entering college ought to begin the learning of a foreign language at an age when it can be learned most easily. But now the Supervisors ask: "May not the demands of a general education, or the preparation for special callings, make it desirable for other pupils, than those who are preparing for colleges, to begin early the study of a foreign language?" Had the New England College Association accomplished nothing more than to secure this admission from so conservative a body as the Supervisors of Boston, its labors would have been amply repaid. In neglecting to teach a living foreign language at an early age, the public schools have placed themselves, in this respect at least, far behind the schools of France and Germany and the best private schools in this country.

The most unsatisfactory part of this Report is that which treats of mathematics. It makes a weak defense of the antiquated "course" in arithmetic; claims that, while "objective geometry would be, practically and educationally, one of the best studies for pupils in primary and grammar schools," yet experience has taught that, "until a careful plan for the study of objective geometry shall have been formed, the work in it, except in mensuration, will probably be miscellaneous and unsatisfactory"; and states positively that it is "out of the question to add algebra to the present grammar school course of study." If Boston school officers could bring themselves to observe what is being done in other places, the Supervisors would be saved the humiliation of making such a statement as that just quoted with regard to algebra. It is not out of the question to add algebra to the present grammar school course of study. For years, it has been so added in the public schools of Brooklyn.

State Superintendent Wolfe of Missouri has just sent out a circular letter to other State Superintendents, wherein he suggests a meeting next September for the purpose of considering uniform State statistics. This suggestion is most valuable and timely. The remarkable heterogeneity of the statistics regularly collected by different States makes comparison of data in certain essential matters not only exceedingly difficult but almost futile. The necessity of conforming somewhat to the statistics required by the National Bureau of Education has brought about some degree of uniformity. But accident, or the tendency of one State to copy another, rather than any rational conviction of what is worth collecting and preserving, is responsible for whatever else of uniformity may exist.

Owing to the diversity of school laws there must always be a diversity in the kinds of data to be collected; but the general adoption of a uniform method of reporting school age, population, attendance, cost per pupil, etc., would greatly facilitate the labor of comparison and give us more satisfactory results. All that is needed to effect this desirable improvement is a willingness on the part of any considerable number of State Superintendents to come together at a convenient time and place and agree upon some system of collecting and recording data that should be generally acceptable. To change old forms and pracitces is not easy, it is true; but in this matter the State Superintendent is almost absolutely supreme, and if a dozen States were to harmonize their differences it would not be long before all others would follow the lead.

The same letter alluded to above suggests also the consideration of interstate indorsement of State certificates or licenses to teach. This, too, is an excellent suggestion. Already the States of New York and New Jersey have incorporated into their respective school laws this power to give full force and effect to certificates issued by other States. There seems to be no valid objection to the universal adoption of this plan. The conditions upon which State certificates are everywhere granted will be found upon investigation to be almost identical. Age, experience, scholarship, comprise all the facts that are usually inquired into. In regard to conditions of age and experience there should be no difficulty in securing an agreement; nor, indeed, in the matter of scholarship qualifications will there be any wide difference of opinion. It might be found necessary for some States to raise their standard of requirements as to scholarship to meet the new conditions essential to interstate recognition of their certificates; but this would be distinct gain. The plan of examination might have been a safe and desirable one years ago when the State school systems were in their embryonic stage and differed widely; but so great now is the prevailing uniformity that to retain longer the old practice is an unnecessary and unjustifiable hardship.

The unexpected resignation of President Adams of Cornell University, and the circumstances surrounding it, call for more extended notice than is now possible. The position of president of a large and rich American university is a difficult one at best, but it will become an impossible and unnecessary office if certain tendencies that show themselves, from time to time, are allowed to go on unchecked. The danger is less in the case of older corporations like Harvard, Yale, and Columbia; but with newer institutions, largely or wholly the result of the beneficence of one individual, it is very different. The EDUCATIONAL REVIEW will return to the discussion of this topic hereafter.

The administration of President Adams has been singularly successful, to all outward appearance. Cornell University, under his direction, has increased greatly in numbers, strength, and influence. It is no longer a struggling infant, but a well-developed institution of assured position and reputation. The fact that it has many professors who are called elsewhere, and are esteemed worthy of being called, is greatly in its favor. President Adams will carry with him into retirement the respect and good wishes of those who have been associated with him in various lines of educational work, and it is greatly to be hoped that his wide experience and ripe judgment will not be wholly turned away from the solution of problems in educational administration and organization.

In Professor Schurman the trustees have found an admirable successor to Presidents White and Adams. If untrammeled, his administration will be as successful as theirs have been. President Schurman has the full confidence both of his immediate associates and of the country.

XII

AUTHORIZED ANNOUNCEMENTS

BUREAU OF EDUCATION

The following publications of the Bureau of Education have been delivered by the public printer since January 1, 1892 :

Annual Report of the Commissioner of Education for 1888–89, 2 vols., delivered to Bureau of Education	20,000	copies
Annual Report of the Commissioner of Education for 1888–89, 2 vols., delivered to Congress	24,000	copies

Circulars of information :

History of Higher Education in Michigan .	20,000	copies
Proceedings of the Fourth International Prison Congress	20,000	"
History of Higher Education in Massachusetts	20,000	"
History of Higher Education in Ohio . .	20,000	"
Southern Women in the recent Educational Movement in the South	20,000	"
	144,000	"

The accessions to the library of the Bureau from January 1 to April 30 were 1577 volumes. Of these 570 were American ; 153 English ; 61 French ; 157 German ; 345 from Italy, Spain, Sweden ; and 291 are a special collection of works on social pathology. Some of the more important titles among these accessions, which are now ready for use by students and scholars, are : Andrew Clark, *Colleges of Oxford ;* Thomas Davidson, *Aristotle, and the Ancient Educational Ideals ;* Thomas Hughes, *Loyola, and the Educational System of the Jesuits ;* John B. Henneman, *Historic Elements in Virginia Education ;* New South Wales, *Report on Technical Education and Manual Training ;* Francis de Paravicini, *Early History of Balliol College ;* William Young, *History of Dulwich College;* A. Wurtz, *Les Hautes Etudes Pratiques dans les Universités*

Allemandes ; F. Nicolay, *Les Enfants mal élévés ;* M. Breal, *L'Enseignement des langues anciennes.*

J. de Sonsa Filho, *Ensino Technico no Brazil ; El Instituto Nacional de Chile*, 1835-1846 ; J. Roldos y Pons, *Disquisiciones Pedagogicas.*

Ministro di Agr., Ind, e Com., *Statistica dell' Instruzione Sec. e Sup.*, 1888-89 ; G. Cesca, *Insegnamento Secondario Classico ;* P. Vecchia, *Le Scienze e le Lettre nella Educazione.*

Pfisterer, *Pädagogische Psychologie ;* H. Keferstein, *Konfessionsschule und ihre Konsequenzen ;* P. Caner, *Unsere Erziehung durch Griechen u. Römer ;* H. Schiller, *Pädagogische Seminarien für das Höh. Lehrant ;* G. Voight, *Bedeutung der Herbart'schen Pädagogik.*

UNIVERSITY OF THE STATE OF NEW YORK.

The thirtieth University Convention will be held in the Senate Chamber at Albany, on July 5, 6, and 7. A large and very important meeting is expected. Mr. George William Curtis will deliver the chancellor's address, and the annual oration will be given by President William Preston Johnson of Tulane University, New Orleans.

The most important topics to be discussed are: the seminar method of advanced instruction; the study of economic and social science in university, college, and academy; standards of admission to college, and teaching by correspondence.

EDUCATIONAL REVIEW

SEPTEMBER, 1892

I

THE SYSTEM OF PAYMENT BY RESULTS

The suggestion that the English principle of "payment by results" should be adopted as the best method of solving the question of religious instruction in the public schools of the United States, makes timely a discussion of that remarkable feature of the English system of public education. A brief account of its development is essential.

Previous to 1832 the English government had never done anything for the education of the people. Not one penny had ever been voted by Parliament, or by any local public authority, to pay a school-teacher or to build a schoolhouse. The existing means of education were the few hundred Endowed Grammar Schools scattered over the country; the parish or charity schools, that were the peculiar educational product of the eighteenth century; the schools founded after 1808 and 1811, respectively, by the two educational societies, the British and Foreign School Society and the National Society; and the Sunday schools, that still followed the example set by Raikes, at Gloucester, of teaching the simplest elements of learning, as well as religion. For the most part, tuition in the grammar schools was gratuitous, but still the expense of attendance excluded the lower classes. Moreover, the majority of these schools had fallen into decay, some because the tide of population had turned away from them, and some because they were badly managed. Instruction in the charity schools, which was commonly poor, was not only free, but clothing was often provided for the children as well. But these schools were altogether insufficient in number and in equipment. Both the grammar schools and the charity schools were mainly under the control and management of the Established Church. The British Society, in its schools, aimed to teach secular studies and the Bible; the National Society, to teach the doctrines of the Established Church and secular studies. There was absolutely nothing answering to public schools, as that expression is now understood in most of the well educated countries of the world. The grammar schools bore that name, but they were strictly middle-class and upper-class schools, and they remain so to-day.

No one who understands the magnitude of national education need be told that this was a miserable educational provision for such a country as England. Of the whole population, only 1 in 11¼ was at school; whereas in Prussia the ratio was 1 in 6.27; in Holland, 1 in 8.11; and in France, 1 in 9. Malthus said it was "a great national disgrace that the education of the lower classes should be left merely to a few Sunday schools." Sydney Smith declared that "there was no Protestant country in the world where the education of the poor had been so infamously neglected as in England." Dean Alford wrote: "Prussia is before us, Switzerland is before us, France is before us; there is no record of any people on earth so highly civilized, so abounding in arts and comfort, and so grossly, generally ignorant, as the English."

In 1832 the government took its first step toward creating a system of public schools. Parliament voted £20,000 to supplement local enterprise in building schoolhouses. It was a small beginning. But Parliament repeated the grant for several years, and then it began to increase the sum voted. About the same time that the increase began, Parliament included normal schools and teachers' salaries in the grants. To trace minutely the successive steps that led up to the present system of elementary schools is here impossible and unnecessary, but a summary of four or five points will assist in understanding the present status.

When a good beginning had once been made, the government rapidly expanded its operations. The grants voted for schools at intervals of five years will make this plain: 1835, £20,000; 1840, £30,000; 1845, £75,000; 1850, £125,000; 1855, £397,000; 1860, £798,000; 1865, £637,000; 1869, £415,000.

At first the money voted by Parliament was apportioned by the Lords of the Treasury on the recommendation of the two educational societies. But in time there began to develop, in the characteristic English manner, a Department of Education. In 1839 the Privy Council passed an order constituting four persons, named "a committee to superintend the application of any sums voted by Parliament for the purpose of promoting public education." "The committee," wrote Mr. T. H. Green, "which had at first to administer £30,000 a year, has grown into a great department of state, dealing with an annual grant from the exchequer of nearly £2,000,000, and exercising a wider and more important discretion than is left to any other office." Finally, Parliament passed an Act creating a vice president of the council, and making him the head of the committee on education; but with this exception, the whole mechanism of administration stood simply upon usage. The secretary of this committee, however, was and is its real head.

The department established an inspectorship. At first this extended only to the buildings that the government helped to build; but when grants came to be made for schools also, the inspection was extended to the secular teaching, leaving religious instruction wholly to the local managers.

The first rules of administration adopted by the Lords of the Treasury, and afterward by the committee on education, were called "minutes." But as these minutes multiplied, they finally were gathered into a document called "Code of Regulations by the Lords of the Committee of Privy Council on Education," or in a word, "The Code." Pursuant to the ninety-seventh section of the Act of 1870, the Department annually lays the code, revised from time to time, on the table of the Houses of Parliament. If it is not amended by the Houses, or rejected by either of them, within thirty days, it becomes of force. The code in operation at any time contains the conditions that public elementary schools and training colleges for teachers must comply with, in order to obtain an annual grant from Parliament in aid of their maintenance.

It was in the Revised Code of 1861 that the principle of payment by results first appeared. Mr. Robert Lowe was then the vigorous head of the educational committee. The annual grant by Parliament had grown to more than three-quarters of a million sterling. The government, under the peculiar system, had no assurance that it was expending its money wisely. Repeated investigation, on the other hand, proved very clearly that much of it was little better than thrown away. Hitherto the government had made its payments to teachers personally, according to a prescribed schedule. Many of them were worse than incompetent. To remedy these evils, it was now proposed to make the payments to the schools rather than to the teachers, and to graduate them to the results of individual examinations of pupils, or to withhold them altogether. More definitely, the new propositions were these: "The school must be held in approved premises and must be under the charge of a certificated teacher;" "the children must have made a certain number of attendances;" "they must pass an individual examination in reading, writing, and arithmetic, and according to the results in each individual case, a grant was to be made." This last clause is the principle of payment by results that is proposed as a solution of the problem of religious instruction in the public schools of this country.

Mr. Lowe took the plan from the recommendations of the Duke of Newcastle's Commission, that had investigated the state of public education in the years 1858–1860. Mr. Lowe said the government must have proof that the teachers were doing their duty; class examinations were not adequate; such expressions as "general efficiency" and "moral atmosphere" in the reports of inspectors were "impalpable essences"; nothing would do but individual examinations. Mr. Lowe declared: "If the new system is costly it shall at least be efficient; if it is inefficient, it shall be cheap." Hence, payment by results was, primarily, a mode of guarding the treasury. An American might think that the proper precaution for the government to take was to look after the examination, selection, and supervision of the teachers. But this the character of the system that had grown up prevented. The government did not examine, employ, or supervise any teachers. There were no school officers other than the committee at Whitehall and the inspectors and clerks whom it appointed. There were thousands of government-assisted schools, but there was not in England one state school, as we understand that expression. The government had formed a great number of educational partnerships with local managers scattered over the kingdom; the government furnishing a part of the money and a general inspection. The local managers provided the remainder of the money and local management. Fees were generally charged; and there was not, in our sense, a free school in England.

Dissatisfaction with this system grew quite as rapidly as the system itself. But it took very different directions. The Established Church, in the main, was well satisfied, because the system tended to its aggrandizement. The Dissenters generally were displeased; and many of them, because they saw the existing system contributing to the upbuilding of the Church, took up the position, in which they were supported by a considerable number of *doctrinaires*, that the state should not meddle with education, but leave it to voluntary enterprise. Then there sprang up the secularists, who stood on this platform, adopted at Birmingham in 1847: "To promote the establishment by law in England and Wales of a system of free schools, which, supported by local rates and managed by a local committee specially elected for that purpose by the ratepayers, shall inspect secular instruction, only leaving to parents, guardians, and religious teachers the instruction of religion; to afford opportunities for which it is proposed that the school shall be closed at stated hours each week."

But in the midst of the confusion there was a growing conviction that the state must go farther and do more. Popular education entered into politics. In 1867 the Queen, in the speech from the throne, commended the subject to the attention of Parliament, and in 1869 Mr. Gladstone came into power, with an immense majority in the House of Commons, pledged to new measures. One of the great achievements of his ministry was the Elementary Education Act of 1867, often called the "Forster Act," from the fact that it was carried through the Commons by Rt. Hon. W. E. Forster, the vice president of the council and head of the educational department. This act, and two supplementary ones, the Sandon Act of 1876, and the Mundella Act of 1880, are the basis of the elementary educational system of England and Wales as it exists to-day.

The Forster Act was a deep disappointment to those who desired the establishment of a state system of schools, pure and simple, leaving private schools and parochial schools to find their own place. It changed the existing edifice somewhat, put on a large addition, and put a new foundation under the whole structure. In explaining the bill, Mr. Forster said the government "must cover the country with good schools, and get the parents to send their children to those schools." This one sentence from his speech well characterizes the measure: "Our object is to complete the present voluntary system, to fill up gaps, sparing the public money where it can be done without, procuring as much as possible the assistance of the parents, and welcoming, as much as we rightly can, the co-operation and aid of those benevolent men who desire to assist their neighbors." The most radical feature of the new Act was this: it divided the kingdom into school districts; ascertained in what districts additional school facilities were needed, and to what extent; created local school boards, empowered and required to vote local rates for the maintenance of schools to be carried on under their management, these new board schools being intended to fill the gaps in the existing system.

The Act of 1870 defined an elementary school as "a school or department of a school at which elementary education is the principal part of the education there given, and does not include any school or department of a school at which the ordinary payments in respect of the instruction from each scholar exceed ninepence a week." The definition of a public elementary school is much more elaborate, viz.:

" Every elementary school which is conducted in accordance with the following regulations shall be a public elementary school within the meaning of this Act; and every public elementary school shall be conducted in accordance the following regulations (a copy of which regulations shall be conspicuously put up in every such school), namely:

" '(1) It shall not be required, as a condition of any child being admitted into, or continuing in the school, that he shall attend, or abstain from attending, any Sunday-school or any place of religious worship, or that he shall attend any religious observance, or any instruction in religious subjects in the school or elsewhere, from which observance or instruction he may be withdrawn by his parent, or that he shall, if withdrawn by his parent, attend the school on any day exclusively set apart for religious observance by the religious body to which his parent belongs.

" '(2) The time or times during which any religious observance is practised, or instruction in religious subjects is given at any meeting of the school, shall be either at the beginning or at the end, or at the beginning and the end of such meeting, and shall be inserted in a time-table to be approved by the Education Department, and to be kept permanently and conspicuously affixed in every schoolroom, and any scholar may be withdrawn by his parent from such observance or instruction without forfeiting any of the other benefits of the school.

" '(3) The school shall be open at all times to the inspection of any of Her Majesty's Inspectors, so, however, that it shall be no part of the duties of such Inspector to inquire into any instruction in religious subjects given at such school, or to examine any scholar therein in religious knowledge, or in any religious subject or book.

" '(4) The school shall be conducted in accordance with the conditions required to be fulfilled by an elementary school in order to obtain an annual parliamentary grant.' "

It will be seen that a public elementary school in England is something very different from such a school in the United States. It may be a board school or a voluntary school; and if a voluntary school, it may be a Church school, a Catholic school, a Congregational school, or a Jewish school. Board schools derive their income from the parliamentary grants, the local rates, fees or "children's pence," and voluntary contributions. Voluntary public schools have the same sources of income, except the rates. The conditions to be fulfilled by schools in order to obtain an annual grant, in addition to those prescribed in the law itself, are laid down in the code. Some of the principal conditions found in the code of March, 1890, that went into operation September 1, are the following:

The school must be conducted as a public elementary school; no child must be refused admittance on other than reasonable grounds; the time-table, and also the fees charged by a board school, must be approved by the department; the school must not be unnecessary, nor be conducted for private profit, nor be farmed out to the teachers; the principal teacher must be certificated; a day school must have been in session not less than 400 half-days in the year; the school premises must be healthy, and the school be efficient; the managers must make the required reports, and publish annually accounts of their income and expenditure; and the income must be applied only for the purposes of public elementary education.

The annual grants made to schools complying with these conditions consist of several grants, that are determined by a set of very technical rules. Unless otherwise ordered, the grant is made for each "unit of average attendance"; or, as we should say, the average daily attendance for the year. Omitting qualifications, the grant for an infant school, comprising children of from three to seven years of age, is made up as follows: (1) A fixed grant of 9s. or 7s.; (2) a variable grant of 2s., 4s., or 6s.; (3) a grant of 1s. for needlework; (4) a singing grant of 1s., if the singing is *by note*, or of 6d. if *by ear*. That is, a "unit of average attendance" may "earn" (as it is called) 17s. for this school, while forty such units may earn forty times that sum.

The grants to a school for older scholars are much more complicated. There is (1) a principal grant of 12s. 6d. or 14s.; (2) a fixed grant for discipline and organization of 1s. or 1s. 6d.; (3) a grant for needlework of 1s. (for girls only); (4) a grant for singing of 1s. or 6d.; (5) a grant for examination in class subjects of 1s. or 2s.; (6) a grant on examination of individual scholars in specific subjects of 4s.; (7) a grant (for girls) for cooking; and (8) a grant (for girls also) for laundry work. Class subjects are English, geography, elementary science, history, and needlework for girls. The specific subjects are algebra, geometry, mechanics, chemistry, physics, physiology, botany, principles of agriculture, Latin, French, domestic economy, Welsh (in Wales), German, bookkeeping, and shorthand.

Then there are special grants for day schools in respect of pupil teachers and of assistant teachers employed for schools so situated that they are put to unusual expense, and for evening schools. Training colleges for teachers are also provided for. The total annual grant to any school, exclusive of special grants, shall not exceed 17s. 6d. for each unit of school attendance, or the total income of the school from all other sources than the grant. It may be asked why the grant varies, consisting of so many different items. The answer is easy. It was found necessary to break up the monotony developed when the Revised Code was first put in force, and the aim of school managers was to crowd as many pupils as possible through three or four elementary studies.

Such, in outline, is the origin and nature of the rule of payment by results that is commended for our acceptance here in America. To quote Mr. Matthew Arnold[1]:

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[1] *The Reign of Queen Victoria*, II: 26.

"To a clever Minister and an austere Secretary, to the House of Commons and the newspapers, the scheme of 'payment by results,' and those results reading, writing, and arithmetic, 'the most necessary part of what children come to school to learn'—a scheme which should make public education, 'if not efficient, cheap, and if not cheap, efficient'—was, of course, attractive. It was intelligible, plausible, likely to be carried, likely to be maintainable after it had been carried. That, by concentrating the teacher's attention upon enabling his scholars to pass in the three elementary matters, it must injure the teaching, narrow it, and make it mechanical, was an educator's objection easily brushed aside by our public men."

It was adopted in the face of the remonstrance of the highest educational authority of the country. It was the device of a man who looked at education from the standpoint of the treasury, and not the standpoint of the schoolhouse. It has never been adopted on the Continent; and Mr. Arnold attributes some portion of the inferiority of the English schools to its influence. It was a makeshift when adopted, and a confession on its face that England had no system of state schools. No doubt it corrected the particular evils that troubled Mr. Lowe. This is shown by the large falling-off in the grants from 1860 to 1869. But it engendered other evils that a high English authority has thus summarized[2]:

"(*a*) It has organized a system of cram, under which 'results,' measured by the standard examinations as opposed to 'methods,' have received undue recognition and reward. (*b*) All scholars, whether clever or dullards, progress at the same rate—one standard per annum, and at the same rate in all subjects simultaneously. (*c*) The degree of success, with neglect, incapacity, and the bad influences of home surroundings, meets with little recognition as compared with the success in 'passing' a high percentage of scholars. (*d*) The profession of the teacher is degraded by persistent and obtrusive appeals to the desire of gain. In the absence of monetary inducements, teachers are tempted to neglect scholars who are not likely to earn good grants. (*e*) Little encouragement is given to teachers to forward the higher moral and intellectual training of their scholars as opposed to the mere acquisition of mechanical facilities in the subjects of examination. (*f*) Scholars trained under this system, and subsequently passing on to secondary schools, are characterized by a lack of mental alertness, and frequently disappoint their early promise."

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[2] Sonnenschein's *Cyclopædia of Education*: Article, "Payment by Results."

For many years the most intelligent friends of education in England have been struggling to rid the schools of payment by results. The Education Department itself has labored to mitigate its evils; in the present code, for instance, throwing the individual examinations out of the infant schools altogether, and otherwise limiting its operation. But all efforts to throw off the incubus have hitherto proved unavailing. It was adopted to guard the treasury rather than the schoolhouse; and it is felt in influential quarters that the need still exists, in view of the mixed character of the public school system. The Department could easily manage the board schools, but there have grown up since 1832 thousands of voluntary schools that are fed from the treasury by this principle as a feeding-pipe. The state of things that existed in 1861 still exists, and in an intensified form. There has been since 1840 a veritable concordat existing between the state and the Church schools, and this the state does not see its way to break up. What the future may be, it is hard to predict; but for the time sectarianism is the pledge of the system of payment by results in the schools of England.

To adopt this system in the United States would be the height of folly. There would arise systems of schools within a system. There would be the board public schools, the Catholic public schools, the Lutheran public schools, and so on. As a consequence, children and teachers would be segregated according to their religious affiliations; points of friction would be multiplied; irritation and jealousy would increase, and the public school system, in the best of all senses, would cease to exist.

Not very long ago the older portions of the United States were supplied with schools of a very heterogeneous character. In most States there were the State schools, not well organized and nowhere free. In all the States there were private schools and denominational schools of various kinds. In these schools of various kinds the children were distributed with large reference to social rank, condition, and religious connections. Narrowness and selfishness were the result. It is the glory of the public school system, as it now exists, to have swept this order of things away. Thousands of private schools and denominational schools have disappeared. Save the large number of children in the Catholic parochial schools, and the small number in the parochial schools of other churches, and the small number who attend private schools for private reasons, the children of the state have been brought together in one system of schools, erected and supported by the state. With all the faults of these schools, the intellectual, moral, social, and political interests of the country have been greatly promoted by them. To build up this system has cost a vast amount of labor, of thought, and of money. It has been opposed at every step by the friends of special educational views and of narrow interests. It is *one* system, and *one* it is likely to remain. In England, where social distinctions are old and firmly rooted, where the Established Church is all powerful, where the strife between the Establishment and Nonconformity is bitter, payment by results may be temporarily useful in aiding the people to reach a unified system of state schools. In the United States there is little reason to fear that it will be allowed to enter to disintegrate and finally destroy the system that now exists.

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II

RELIGIOUS INSTRUCTION IN STATE SCHOOLS

AN AGNOSTIC VIEW

Two prominent and diverse ideals with reference to the training of the young are brought before the mind of the student of pedagogical science. The one may be termed the mechanical ideal, the other the vital; or, from a somewhat different point of view, one method may be termed empirical and the other scientific. The first is best characterized by the term "instruction"; the latter by the term "education." The one aims to instill into the mind of the child certain facts assumed to be verified, and certain definitely formulated ideas and principles bearing upon the various topics of intellectual apprehension, which must be received on authority of the teacher or text-book and memorized by the pupil. The other subordinates the memorizing of facts and dates and verbal formulas, and aims chiefly to draw out that which is in the mind of the child, to energize and cultivate his faculties of perception, observation, and original judgment, thus fitting him for creating direct and original relations with the problems of thought and life, and enabling him to battle successfully with the resistance which he is sure to meet in the subsequent experiences of an active career in the competitive arena of the social world. The one method, in short, aims to *form* the child on some preconceived mold or model of authority; the other to *inform* him by stimulating and developing to harmonious uses all the native powers of his being.

In all departments of ordinary intellectual training, the wise instructor at the present day recognizes the fatal defects of the first method, and the transcendent excellence of the second. More and more the text-book is subordinated to the living voice of the trained and intelligent teacher; more and more a true comprehension of the principles of psychological science is recognized as essential in the educator; more and more the personality of the child is respected, and the efforts of the teacher are wisely directed to secure his natural and harmonious development.

There is one department of thought, however, in which there is a very general opposition to the employment of that method which in all other departments is recognized as supremely excellent. That department, which in its name assumes to possess the character and functions of a science, is termed theology. When we investigate its pretensions to be regarded as a science, or "word," or "logos," of the infinite, we find instead of a single well defined system of thought, universally accepted as true by intelligent minds, methods as diverse as the innumerable contending sects. It is not my purpose to compare, or estimate, the respective values of the claims made for these numerous theological systems. I desire simply to note that theology bears a very different relation to pedagogical science from mathematics, or natural science, or history, or geography, or any of the ordinary branches of intellectual culture. In all other departments of thought, with the possible exception of philosophy, there is a body of data and of laws derived therefrom by scientific induction, which is recognized as possessing universal validity. In theology, there is no universally recognized "consensus of the competent" to determine what shall or what shall not be accepted and taught as true. No form of theology, therefore, possesses that scientific justification which entitles it to be regarded as truth and taught as such in our public schools.

As an American, I do not assume that, in this country, we have attained perfection in our modes of government, in our conduct of public education, or in our estimate of the values either of ideas or of institutions. In some respects we are evidently far from the attainment of this ideal. In regard to the relations of the church to the state, however, I believe we have set an example to the world which other nationalities will one day be compelled to follow, and to which we ourselves may well render a more rigid and exact obedience. Our fathers had before them the lessons of all history, and declined to allow the newly launched ship of state to be wrecked on the rocks of theological disputation. The descendants of New England Puritans, of Rhode Island Baptists, of New York and Virginia Episcopalians, of Pennsylvania and Rhode Island Quakers, and of Maryland Catholics united in declaring that in this country church and state should be forever separate ; that every man should be free to follow the dictates of his own conscience in matters theological ; that religious dogmas should not be inculcated by the state nor elevated into conditions of citizenship. In some minor particulars we have failed to be wholly consistent with this high ideal, but on the whole we have held it steadily in view. We have squared our institutions to it, and I believe its principles are to-day accepted and respected by the vast majority of American citizens of whatever religious connection.

I have read with deep interest the discussion of the question of Religious Instruction in State Schools in the EDUCATIONAL REVIEW [1] by Bishop Spalding and Dr. Grant. The former suggests rather than clearly defines the position held by the Catholic Church, in a style and temper so altogether admirable that it will doubtless carry conviction to some minds which would violently oppose a more impetuous and forcible demand. Bishop Spalding's article is one which every protestant Christian and every dogmatic "liberal," as well, would do well to read ; and in which all men, of whatever creed, or no creed, may find much which compels assent. When the Bishop says, for example, that "the end of education is to fit man for completeness of life, to train all his faculties, to call all his endowments into play, to make him symmetrical and whole in body and soul," he eloquently voices an ideal which all thoughtful educators are compelled to recognize as expressive of the highest truth ; and his concluding paragraph is instinct with noble and uplifting thought which, in its essence, must command assent even from those who ignore or deny its theological implications. What thoughtful man can fail to perceive with him that "the deeper tendency of the present age is not to exclude religion from any vital process, but rather to widen the content of the idea of religion until it embrace the whole life of man"? So complete is my own agreement with this pregnant thought that I propose to make it the text for a brief discussion of the subject of religious education in state schools from the standpoint of the philosophical agnostic.

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[1] II : 105 ; III : 40.

My own agnosticism is of the Spencerian rather than of the Huxleian type, and I have little intellectual sympathy with that crude variety of dogmatic "liberalism" which sometimes masquerades behind the agnostic name. Yet I confess my fellowship with that class which Dr. Grant so cavalierly rules out in his opening paragraph as possessing no rights which the majority is bound to respect. In the benighted regions of the Provinces it may be that "gnostics" are plentiful and agnostics are few; but in the metropolis of America I do not find myself without company. Indeed, I find kinship of thought on every side, and perceive in that I am one of a numerous and growing army, who, on the basis of modern scientific psychology, are forced to admit that there are some things that they do not and cannot know. In this country we are not disfranchised for our intellectual modesty. We are permitted to affirm in the courts, to serve on juries, and to live on amicable terms with our more or less orthodox fellow-citizens. In some quarters we are even welcomed to the churches and permitted to teach the things that we do know, or think we know, in the Sunday schools. Nor are our rights in the public schools seriously abridged. I have even seen it hinted in the veracious newspapers of the vicinage, and charged in the more or less veracious theological conferences, that some of us are seated in public pedagogical chairs. It is nowhere asserted, that I have seen, that we are not good and conscientious teachers when we are thus honored, or that we force our own intellectual convictions upon the pupils committed to our care.

That I may make my position somewhat clearer, let me ask, then, Who is the philosophical agnostic? What does he ask of the state in the matter of public education?

The agnostic is one who recognizes the limitations, the finiteness, of the human intellect. He perceives, not that there is no infinite reality external to the human mind, but that this reality can only be known to man symbolically, as determined by the nature of his psychical limitations. The philosophical agnostic does not agree with Issaurat, in his wholesale denunciation of religion, as in the passage quoted by Bishop Spalding. Issaurat represents a class with which the agnostic has even less sympathy than he has with the dogmatic theologian—the equally dogmatic assertors of materialism. In the person of its ablest representative, Mr. Herbert Spencer, philosophical agnosticism recognizes the reality of the religious faculty in man, and makes no protest against its rational culture and normal activity. This, indeed, Mr. Spencer regards as essential to the full and complete life, the attainment of which is the supreme aim of his ethical and social philosophy.

Religion, however, to the philosophical agnostic, is by no means to be identified with the theological garments in which it happens to be clothed. These it changes from age to age, to suit the intellectual requirements of various peoples in different stages of culture and development. The reality, however, persists in spite of these shifting phases of its manifestation, and will endure when the last vestige of anthropomorphic and man-made theology is stripped from its essential truth. Taking this view of religion, the agnostic would have no objection to the training of the religious nature of his children in precisely the same way as that in which the most enlightened educators aim to train their intellectual natures. He does object strongly, however, to the inculcation, even by inference or object-lesson, of theological dogmas, which, in his view, can never do otherwise than distort, and unwisely bias and misdirect the normal activities of the religious sentiment.

Nor does the agnostic conceive it impossible to train and develop the religious sentiment without the inculcation of dogma, or even apart from any technical Christian teaching. The essentials of the religious sentiment, which underlie all its specific manifestations, are reverence, faithfulness, and faith in the reality of the Unseen. All these sentiments and faculties may be stimulated along with the moral and intellectual training of children without any dogmatic teaching; and unless the teacher can arouse these sentiments in his pupils in connection with their daily tasks, he is lacking in complete preparation and qualification for his worthy and noble undertaking.

All teaching implies the fundamental distinction between truth and error—between that which conforms to reality and that which does not so conform, or merely appears so to conform. Reverence for truth, then, lies at the very foundation of all knowledge, and must be inculcated at every step of intellectual advancement. With the evolution and wise culture of the rational nature, and the cultivation of habits of reflection, the mind will naturally come to regard the order of nature, and those higher uniformities of conduct which constitute the perfect flower of human character, as phenomena of an underlying and indwelling reality, which is the source and nexus of all specific forms of truth, and merits the reverence which the mind has been taught to bestow upon the principle of truth everywhere. Parents who deem the teaching of dogmatic theology essential, can easily divert this sentiment into channels which they deem desirable, by instruction in the home or the Sunday school, while the mind of the child remains plastic and receptive; but this is manifestly no part of the duty of the state, as we define it in America.

Whether we derive the word religion from *relegere* or *religare*, that "binding back" which implies a consciousness of obligation to submit to the requirements of those laws by which we are related to the nature of things, or that "conning over and over," which implies the persistent search for that which is real and true, both of these conceptions symbolize the quality of *faithfulness* which is essential to the manifestation and exercise of the religious sentiment. Here again we have a quality which is necessarily and naturally developed by all wise educational methods, and the growth of which may be stimulated apart from all ceremonial acts or dogmatic teaching. We rightly affirm of him who applies himself to the duty of the hour with sincerity and faithfulness that he *religiously* performs his obligations. As the quaint George Herbert says:

> Who sweeps a room as by His laws
> Makes that and the action fine.

It is this sort of religion, which enters into every thought, which inspires and elevates every act of the daily life, that the agnostic thinks it important to teach and to practice, rather than that which differentiates religion from life, and makes it consist in special acts of ritual and worship;—a religion which, as Bishop Spalding says, "is not the worship of infinite wisdom, holiness, and justice alone, but is also the worship of the humane, the beautiful, and the industriously active."

Faith in the Unseen Reality is inculcated by daily experience in all faithful work. It may seem strange to those who have studied agnosticism in the camp of its enemies to find this sentiment held up as a part of the agnostic's creed. He is ordinarily regarded as one who has no faith in anything—who repudiates faith as the mother of all superstitions, and accepts nothing which cannot be logically and inductively demonstrated. The existence of an Unseen Reality which, owing to the limitation of his faculties, is in its essential nature unknowable, is, however, the fundamental postulate of the agnostic's creed. Herbert Spencer declares the apprehension of this Reality to be the most certain of all our knowledge. But with one of old he asks, substantially, "Who by searching can find out God? Who can know the Almighty to perfection?" Who shall declare a *science* of the Infinite?

Indeed, we may not only apprehend the existence of this reality, and know that our own lives, as well as the life and being of universal nature, are dependent upon it, but reason teaches us, as Mr. Spencer declares, that though to clothe it with human personality and consciousness were to limit and belittle it, yet we must believe that it "transcends human personality and consciousness as much as these transcend a plant's functions." It is greater, not less, than all that we see and know. Here, then, is an abundant stimulus to faith in the Unseen, as a reality superior to all the shifting phenomena of the senses, and without which these phenomena are an idle phantasmagoria, unrelated to any common principle of life, manifesting no intelligible trend or purpose. I cannot grant the assertion of Bishop Spalding that sectarians more than others experience a moral fervor, an enthusiasm for humanity.

Reverence, faithfulness, and faith—are not these ethical as well as religious qualities, and as such are they not inculcated in all serious and faithful work? Granting with the student of human origins, that religion is older than morality, and arises from a different source; admitting as all close observers must, that a lofty sentimental piety, and rigid observance of ritualistic practices, are quite consistent with a very imperfect sense of justice and moral obligations; it is nevertheless true that in our day no conception of religion is complete which is not inclusive of morality. It is a significant admission of Bishop Spalding that the tendency to ignore creeds, which he rightly interprets as a sign of waning belief in dogmatic religion, is accompanied by an increasing emphasis on the moral aspects of the religious life. So far is it from being true that moral fervor is kept alive by ritual observances, that I believe the exact opposite to this statement more nearly expresses the truth. The identification of morals with sectarian dogmas and ceremonial observances, has been well-nigh fatal to all the genuine springs of ethical effort. It has based morality upon the shifting sands of a verbal statement of truth, instead of upon the truth itself as revealed in the nature of things—in the constitution of the universe. By its emphasis on remote and extrinsic penalties for wrong-doing, it has robbed the soul of the finer ethical insight which declares that the effects of evil acts are intrinsic, and instantly enforced in the atrophy of character. In this era of crumbling creeds and shifting opinions, the greatest service to morality is to teach the momentous truth that the enforcement of the moral law is not dependent upon man's speculative opinions about God or the universe. It is the false teaching that it is so dependent, and not the contrary teaching which renders the moral law meaningless. This teaching of the instant penalty of wrong-doing will be as effective with the children of atheists and agnostics, of materialists and infidels, as with those of the most devout Christian; and there is no place, except the family, where it can be so effectively enforced as in the public school.

Though the public school may not teach dogma or ritual, or rightly force upon any pupil a stated reading of the Bible, or repetition of prayers, there is no reason, therefore, why it should not wisely cultivate the religious nature of the pupil and teach the soundest principles of morality. If the parent at home or in the Church chooses to have this teaching supplemented by instruction in the tenets of his particular faith, well and good. To this the agnostic can raise only a moral and rational objection, for over the action of sectarian parents in their individual and parental capacity he has no control. But when it is proposed to introduce sectarian teaching into public schools, or to appropriate the public educational funds to denominational institutions of learning, he is impelled to enter his most emphatic protest.

Nor, in entering this protest does he speak for himself alone, or for those only with whom he is in intellectual agreement; nor for these inclusive of the small number of avowed atheists and "infidels," whose rights are violated by such a misuse of educational opportunities. His judgment herein is sustained by large numbers of the thoughtful friends of public education among all denominations of Christian believers, who see clearly that the allotment of educational funds to denominational schools would be the practical destruction of our public school system, and that the only logical ground upon which we can resist the demands of our Catholic fellow-citizens for such a division is that of the complete secularity of our public schools. Half-way measures like those advocated by Dr. Grant are acceptable neither to the Catholic nor to the liberal; the solution of this problem can only be found in a position of absolute equity to all classes in the community.

The cultivated philosophical agnostic deeply regrets the necessity of excluding from the schools the classic literature of the Hebrew and Christian Scriptures. If some of the Psalms and portions of the law and prophetical writings, with the Sermon on the Mount and other selections from the New Testament, could be read as literature and for ethical inspiration, together with the ethical writings of the Buddhist, the wisdom of Confucius and Mencius and the Stoic philosophers, without sanctimoniousness of tone, or tacit assumptions of fetichistic efficacy, there could be no objection to such readings—at least, not on the part of the agnostic. The sectarian, I suspect, would object to such use of these literatures, as it would tend to break down that exclusive reverence for the Bible as a supernatural revelation which he desires to inculcate, and to place its ethical teachings upon the same ground as that whereon the wisdom of uninspired sages is permitted to rest. The study of comparative religion gives breadth to the mind, and is full of the noblest ethical inspiration; but for similar reasons this, too, is excluded not only from the curriculum of our public schools, but too frequently from our universities and advanced institutions of learning.

But if we cannot inculcate breadth of view and depth of moral sentiment by the use of these noble literatures, our public schools have left a well of ethical inspiration in the study of the exact sciences. President Andrews, of Brown University, has recognized this function in scientific instruction in a beautiful passage which I cannot refrain from quoting:

"Science," he affirms, "enriches the higher life of humanity, not out of its intellectual funds alone. Ethical principles and practice are stiffened by influences from the same source. Instance, the love of right for right's sake, the reverence of simple truth, irrespective of consequences, which has come into being almost solely from the inculcation of exact science. This is a result for which those who love righteousness should be grateful to the Positive Philosophy. In this respect the positivists have, without thinking of it, become powerful ethical teachers. They have insisted, as had never been done before, upon the importance of laying aside prejudice and interest, and getting at simple, unalloyed fact. There has been called into existence thus a new, distinct, and most beautiful form of the love of truth. This noble phase of virtue is emphasized and nourished to-day in every scientific laboratory and class-room throughout the world. It has come to possess even theology, and will yet revolutionize that science. It has gone over into the study of the past, and founded the science of historical investigation. Many false but time-honored judgments touching the men and things of former times are changing in consequence of the truer historical apprehension engendered from this cause. It results that national and ecclesiastical animosities are becoming less intense, opening the way for larger peace and good will toward men. . . Natural theology will have to be recast, but its new form will add infinitely to its impressiveness. We shall find it no loss to have relinquished the untenable distributive theology of Paley, when in its stead is installed that grander thought of a perfect cosmic unity reached through the clash of forces energizing apparently without aim. Science is destined to prove at this point an immense missionary power." With these noble words of this able and conservative educator, I most heartily agree. As long as science remains in our common schools, we need fear no decay of the moral sentiment, though every shred of dogmatic theology goes out.

In a country like ours, where the intelligence of the citizen is the sole safeguard of our free institutions, the public school is a vital necessity. Imperfect as our system doubtless is in many respects, it must be sustained, strengthened, and perfected by all the means at our command. To this end we need unity of purpose and wisdom of plan and administration. Our system of public education is too sacred to be thrown into the arena of sectarian dispute. The agnostic does not ask that his particular belief shall be inculcated in the schools. He does not plead for any special favors at the hand of the public. He only asks, in common with large numbers of his fellow-citizens, that the schools be protected from disintegration by conforming to the simple requirements of equal justice in the matter of religious instruction. He asks that the recognized principles of natural morality be clearly taught, and the intrinsic penalties of wrong-doing be plainly inculcated. This, he believes, cannot be successfully done while classes or individuals are subjected to injustice in the administration of public education, as they are by the enforcement of religious observances in violation of their conscientious convictions. The agnostic asks, therefore, that the public school be sacredly devoted to the inculcation of those common truths which are embodied in proper courses of secular instruction, including such incidental training of the moral and religious nature of the pupil as is the natural accompaniment of all wise educational efforts. Thus only, he believes, can our schools be successfully maintained; thus only can we logically resist all efforts for the disintegration of our public school system by the division of the educational funds; thus only can public instruction be so applied that it will produce nobler and more manly men and women, and better American citizens.

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III

COMPULSORY EDUCATION IN THE UNITED STATES, (III)

It is the purpose of the present paper to set forth the problem of compulsory education as it presents itself to the American people of to-day, and to put to the test of results, so far as possible, the methods adopted for its solution. It is hardly necessary to explain that the problem is not quite the same now that it was a half century ago. Perhaps it would be more accurate to say that the conditions of the problem are not the same. The coming to our shores of increasing numbers of foreign born, the growing up among us of thousands upon thousands of the children of these foreign born, the massing in our great cities of both foreign and native populations, the settlement in our Northwest and newer West of hundreds of alien colonies, the development in our manufacturing communities of great industries employing the unskilled labor of children—these facts and others equally significant have rendered the once simple question, How shall the youth be instructed? more difficult to answer here in America in the closing years of this nineteenth century, than in almost any other country of our rank in civilization. Under these changed conditions, we find the discussion of compulsion chiefly centering at three vital points of agitation. These are: (1) The restriction of the employment of children of school age; (2) provision for the children of the very poor, so that they may not be kept from school by sheer destitution; (3) regulation and limitation of the amount and kind of instruction offered as a substitute for that of the public schools, especially of the instruction given in schools supported by religious bodies for children of alien parentage or descent.

To illustrate modern methods of dealing with the different phases of the first in this group of very practical problems, I cannot do better than to refer to Rhode Island's experience; for while the labor of children has been a subject of legislation in many States, it has nowhere else come to be a matter of real concern to so large a proportion of the population. About ten years ago Rhode Island first became thoroughly aroused to the necessity of placing some reasonable restriction on the employment of children in factory labor. There had been feeble attempts at restriction in the past, by a kind of local option which left all initiative to the towns and cities, but these had been fruitless. In the meantime, the neighboring States of Massachusetts and Connecticut, starting with the somewhat crude enactments already noted,[1] had made marked progress in working out efficient systems of supervision, and several other States had followed their lead. The immediate effect, however, of this activity on the part of her neighbors had been anything but favorable in Rhode Island, for families had come thither from Connecticut and Massachusetts for the express purpose of getting employment in mills for their children, who had been kept out of such employment by the vigilance of the truant officers in their former homes. The result was that ignorance became an evil that could no longer be disguised. The showing made by the census of 1880 was appalling. The proportion of illiterates to the whole population—11 per cent.—was unequaled in any other Northern State. The foreign element in Rhode Island's population is large, and hopelessly ignorant, so far as the adults are concerned. It was evident that the State must take active measures to secure the schooling of the young children (19 per cent. of whom lived in the cities and large villages), or this living mass of illiteracy would grow steadily greater.[2]

The law which Rhode Island finally enacted as a partial safeguard against the growing evil disclosed by the census returns, was by no means extreme in any of its provisions. Compared with the legislation of Massachusetts and other New England States, it was decidedly moderate. Connecticut and Massachusetts had made thirteen the minimum age of employment in factories, stores, and workshops. Rhode Island placed the restriction at ten, and then made it apply only during school hours. The compulsory period was made unusually long—between the ages of seven and fifteen—but only twelve weeks' attendance in each year was required. Children between ten and fifteen may not be employed except in vacations, unless they shall have attended school for twelve weeks in the twelve months preceding employment. Rhode Island officials have found even this law, which is apparently far less exacting than most employment laws of recent date, quite hard enough to enforce. There has been almost constant complaint as to the employment of children under ten in factories. Still great progress has been made in bringing this class of children into the schools, and in some communities truancy seems to have been practically done away with.[3] The State commissioner of public schools believes that a more uniform execution of the law may be obtained by giving supervisory power to State officials, as is done in Connecticut. The Rhode Island experiment may be said to be the only vigorous attempt, begun under wholly modern conditions, to deal with this question of child labor as a part of the educational problem. The laws relating to the employment of children in the other New England States had been in force before the French Canadians had settled in the factory towns in any considerable numbers. The newcomers found the laws in operation, and were compelled to obey them. In Rhode Island, on the other hand, the children of foreigners had been growing up in ignorance for years, in some communities, before an attempt was made to bring them into the schools. Considering the difficulty that must, of necessity, attend the execution of any law under such circumstances, the State is to be congratulated on the measure of success thus far attained.

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[1] EDUCATIONAL REVIEW, III: 447–448.

[2] Rhode Island School Report for 1882, pp. 113–119.

The number of States provided with some form of children's employment regulation is steadily increasing. The influence of the labor unions in securing such legislation has been important, and frequent national conferences of State labor commissioners and factory inspectors have dealt with the question to some purpose. In most cases the sections in the old compulsory education laws relating to the subject have proved entirely inadequate, and recourse has been had to new and distinct enactments, in which the requirement of school attendance is incidental to that of exemption from employment. It will take time to overcome the greed and short-sightedness of parents; but the argument against child labor, on purely economic grounds, leaving education out of account altogether, is a powerful one. Child labor lowers the standard of living, and lowers the wages of adults.[4] Once let this truth be clearly apprehended by workingmen, and it can hardly be doubted that public sentiment, which, in this country, is always a far more effective agent of reform than legal restriction, will make child labor not merely unpopular, but impossible.

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[3] Report of United States Commissioner of Education, 1888–89, I: 503.

But in the case of children living in extreme poverty, the difficulties in the way of school attendance are not removed simply by shutting the avenues of employment. After the child has been taken from shop, or mill, or store, he must still be clothed, if he is to be sent to school, and truant officers in cities frequently meet with cases where the parents plead lack of necessary clothing as the cause of their children's absenteeism. How to deal with these cases of destitution becomes an exceedingly important question in connection with compulsory school attendance.

It is often assumed by writers that, under our American public school system, rich and poor have always enjoyed equal opportunities on equal terms, but this assumption is based on inaccurate knowledge of the facts. Not to go back to the times when the schools were free to poor children, while others paid tuition, we need only to recall the fact that, to-day, in New York and several other States, text-books are provided for all unable to buy them, to perceive that discrimination is encouraged, to the advantage of the poor.[5] In all attempts to enforce compulsory laws, the poverty of families is found to be a practical difficulty. In a number of States this is made an excuse for non-attendance, but obviously this course offers no solution, but only an evasion of the real problem. The duty of the state to stand *in loco parentis* has not been fully recognized in all quarters, but the advocates of compulsion have not been wanting in quick apprehension of the logic of their position. It is absurd for the state to undertake the education of all its children, unless it stands ready at the same time to receive and care for the needy among them. To exempt such from the operation of the law is not a kindness, but an act of injustice. The requirement of school attendance, if it has any justification at all, must be held to have been framed, not primarily as a restriction on the liberty of children, but as a means to promote their well-being and, thereby, to help secure the greatest good to the greatest number. This end is wholly lost to view when the state passively permits poverty to remain a bar to education. Ignorance can only be regarded as a foe alike to the child and to the state, and it is no less a foe when aided, as it often is, by conditions for which the child himself is not responsible, and which the state alone has power to remove.

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[4] See Willoughby, "Political Economy of Child Labor," *Publications of American Economic Association*, Vol. v, No. 2, for an interesting discussion of this point.

But to what extent shall the child so circumstanced receive public aid? Until recently it was thought that the supplying of free text-books was all that could reasonably be expected, but now Ohio and Colorado have undertaken to provide clothing for all children of school age whose parents are unable to clothe them. There can be little question that other States will soon be brought face to face with the same problem. When the state has the simple alternative presented of permitting the child to grow up in ignorance and thus become, in a greater or less degree, a public burden, or of aiding it by public bounty, for a limited period, to become an active, self-supporting member of the body politic, the socialistic bugbear has few terrors for the "plain people" who pay the taxes in this country. And yet, it is quite evident that, unless great caution is used, such a policy may be perverted into a form of public charity which would have anything but a beneficial effect on its recipients or on the community. If not wisely directed, it may lead to improvidence of a very dangerous type. It affects those children who are situated just on the border line of pauperism. Any course that would tend to force them within that line is surely to be avoided. Such provisions as those now in force in Ohio and Colorado demand the utmost vigilance on the part of the officials charged with their enforcement. Time alone can determine the wisdom of such legislation as applied to American conditions, but, at present, the question is being asked here and there over the country: "Is there any escape from it?"

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[5] In several States all children, rich and poor alike, are provided with text-books at public expense, but allusion is here made only to those where such provision is conditioned on need.

Of late, however, the most violent controversies have not been over the state's right to insist on the schooling of children, or its duty to protect the helpless, but rather as to how far the state's authority shall be exerted in fixing the standards and regulating the methods of non-public instruction. What is known as the "parochial school question" includes two separate and distinct issues. The one lies between those who believe that public funds should be appropriated to religious establishments for educational purposes and those who contend that all instruction at public expense should be non-sectarian. Again, there is one party which asserts that the state must exercise supervision over private schools, at least to the extent of requiring their standards to be the same as those of the public schools, and a host of supporters of the church schools rise in indignation at this invasion of their assumed rights. Here is another issue, and at present it is a very lively one. Should Archbishop Ireland's plan[6] be generally adopted, and prove practicable, the parochial schools would become public, and be subject to the same supervision to which all public schools are subject. The administration of compulsory education laws would thus become greatly simplified; for there would be but one school system in each community, the details of which could be definitely prescribed and understood, so that attendance for a certain number of weeks in each year would fully satisfy the requirements of the law. Under existing conditions there is much difficulty in enforcing compulsion in places where parochial and public schools occupy the same field. Very few attempts have been made to bring parochial schools under state inspection. The Ohio compulsory law requires every parish school to furnish the names, ages, and places of residence of its pupils. This is to enable the authorities to know what children are complying with the law. The head of a Toledo school of this character refused to give the information sought, on the ground that the law was unconstitutional, in that it interfered with the rights of parents to educate their children according to the dictates of their own consciences. The Ohio supreme court has decided that the provision in question was not unconstitutional, but that the state has a right to compel the attendance of children at school.[7] The law does not attempt to restrict this attendance to the public schools, nor does it include any particular class of schools. Therefore it does not interfere with rights of conscience. This Toledo case was argued and decided on broad constitutional grounds. Perhaps no decision more important to the future of all compulsory education legislation in this country has ever been rendered by an American court. The nature of the contention only makes more evident the intimate relation existing between the general question of compulsion and that of state inspection of public schools.

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[6] EDUCATIONAL REVIEW, III: 462.

The most familiar instance of recent discussion of this latter question in its various phases is the political agitation carried on in Wisconsin and Illinois in 1890. Ostensibly the sole issue in that contest was the requirement that English be used as the medium of instruction in elementary branches in all schools, but large numbers of Catholics and Lutherans were induced to believe that insistence on that requirement was in effect a covert attack on the whole system of parochial schools. The most distinguished exponent of the opposition to the "Bennett law" in Wisconsin, Senator Vilas, seems to contend[8] that the victory of the Democrats in that State, in the elections of 1890, established once for all the principle of absolute non-interference by public authority in any and every form of private instruction. The state may not ask what is taught in the private schools, nor how much instruction is given in any subject, nor whether the teachers are qualified to give instruction. The inevitable conclusion from the Senator's reasoning is that the state has no right to demand of any parent that his children be educated at all; for of what value is the parent's answer that his children are in private schools, if the state be forbidden to ascertain through its authority what is taught in those schools, or whether anything is taught in them? Mere attendance, in itself, is of no importance to the state. The Senator's argument, therefore, seems to overthrow every form of compulsion, and yet the first action of the last Wisconsin legislature, after the repeal of the obnoxious law of 1889, was the passage of a law, similar to those in force in more than a score of other States, requiring attendance for a fixed period in each year, and imposing a penalty on the parents for non-compliance. The truth is that compulsory education in this country must stand or fall with private school inspection. Massachusetts, Connecticut, and Rhode Island have clearly recognized this truth, and provisions practically identical with the requirements of the "Bennett law" had long been in force in each of those States.

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[7] *Weekly Law Bulletin and Ohio Law Journal*, XXVII: 313.

DOES COMPULSION COMPEL?

The accompanying table shows in detail the more important provisions of all the compulsory laws now in force in the United States. Statistics of attendance in the different States are practically valueless as showing the effect of these laws. As the United States Commissioner has pointed out in his last report, the proportion of children of school age affected by these laws is small, and the variations in school age and other particulars from State to State render an equable comparison between a State with a compulsory law and one without it, entirely impossible. For information as to what is actually accomplished by compulsory legislation, we are compelled to depend on the record of cases dealt with, supplemented by statements of school officers. The indirect moral effect of such laws, of course, cannot be ascertained through any system of statistics. The most important and useful information has been furnished by the annual reports of the school superintendents of the cities of Boston and Brooklyn. Superintendent Seaver of Boston has made the following statement as to the general result of an investigation conducted with great care and covering a period of six years: "Of 50,000 children in Boston to whom the compulsory laws apply, the number found inexcusably absent from school during any one year is between 500 and 600, or a trifle over one per cent. Also, it is true that more than half of this unexcused absence occurs among children already fourteen years old; that is, among children just approaching the time of exemption from the compulsory law. Again, more than one-half of the remaining unexcused absences occurs among children already thirteen years old. Thus it appears that school attendance is well-nigh perfect among the younger children; that is, among those from eight to twelve years of age, both ages included."[9]

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[8] *Forum*, October, 1891.

The last Brooklyn school report shows that during 1891 the attendance officers made 36,826 visits, investigated 6324 cases, and reinvestigated 3111 cases. It was found that 2341 children were kept at home by their parents, 1630 by sickness, and 468 by poverty. Of the truants and non-attendants, 3518 were placed in school, and 273 in special attendance school and truant home. It was found that 36 children were employed, in violation of the compulsory law, and they were placed in school. The recent experience of Brooklyn seems to demonstrate that much can be accomplished by a vigorous city school administration, even under a defective law.

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[9] *Proceedings of Department of Superintendence*, Philadelphia meeting, 1891.

LAWS RELATING TO SCHOOL ATTENDANCE IN THE UNITED STATES.

Abstracts of most of the laws are published in the report of U. S. Commissioner of Education for 1888–89.

STATES AND TERRITORIES.	COMPULSORY AGE.	AMOUNT OF REQUIRED ATTENDANCE IN EACH YEAR.	OFFICERS CHARGED WITH ENFORCEMENT OF LAW.	PENALTY ON PARENTS OR GUARDIANS.	CUSTODY OF TRUANTS.	PROVISION FOR POOR CHILDREN.	UNDER WHAT AGE IS EMPLOYMENT DURING SCHOOL HOURS ABSOLUTELY FORBIDDEN?	BETWEEN WHAT AGES IS SCHOOLING REQUIRED PRELIMINARY TO EMPLOYMENT?	AMOUNT OF SUCH SCHOOLING.	REQUIREMENTS OF NON-PUBLIC SCHOOLS.
California......	8–14	Two-thirds of school term.	Clerk of board of education or district trustees.	Fine of not more than $20 and costs for first offense, and $20 to $50 and costs for each subsequent offense.						
Colorado........	8–14	12 weeks.	Any school director.	Fine of $5 to $25 each offense.		Clothing.		Under 14	12 weeks each year.	"Competent instructors."
Connecticut ..	8–16	While sch'ls are in session	Truant officers.	Fine of $5 for each week's failure to comply with law.	Institutions of instruction or correction, or State reform school.		13	13–14	12 weeks, preceding year.	Hours, terms, and studies to be same as in public schools and teaching in English language.
Dist. of Columbia........ ...	6–14	12 weeks.		Fine of $20.						
Idaho	8–14	12 weeks.	School trustees.	Fine of $5 to $25 for first, and $10 to $50 for each subsequent offense.		Free text-books.				
Illinois....	7–14	16 weeks.	Truant officers appointed by boards of education and school directors.	Fine of $1 to $20.	To be returned to the proper school.					Must teach *in English language* reading, writing, arithmetic, U. S. history, and geography.
Kansas	8–14	12 weeks.	School directors and presidents of boards of education.	Fine of $5 to $10 for first, and $10 to $20 for each subsequent offense.		Excused from attendance.				"Competent instructors."
Maine..........	8–15	16 weeks.	Truant officers.	Fine of not more than $25.	State reform school.		12	Under 15	16 weeks, preceding year.	
Massachusetts..	8–14[1]	30 weeks if schools are kept, otherwise 20.	Truant officers and school committees.	Fine of not more than $20.	"Institutions of instruction" and county truant schools.		13	13–16	20 weeks, preceding year.	Teaching must be in English language, and equal in thoroughness and efficiency to that of public schools.
Michigan..... ..	8–14	4 months.	Truant officers and school boards.		Truant schools.	Free text-books.		8–14	4 months, preceding year.	Must teach such branches as are usually taught in the public schools.
			School directors and	Fine of $10 to $25 for		Excused				

Nevada..	8-14	16 weeks.	School trustees.	Fine of $50 to $100 for first, and $100 to $200 for each subsequent offense.		Free text-books.			
New Hampshire	8-14	12 weeks.	School committees and boards of education.	Fine of not more than $10 for first, and $20 for each subsequent offense.	State reform schools.		13	13-16	For children under 16, 12 weeks; under 14, 6 months, or whole time school was kept; under 12, whole time kept.	
New Jersey...	7-12	20 weeks.	Police and constables.	Fine of not less than $10 for first, and not more than $25 for each subsequent offense, or imprisonment 1 to 3 months	Juvenile reformatories.		12 boy, 14 girl.	Under 15	12 weeks, preceding year.	
New Mexico....	?	3 months.	School directors.	Fine of $1 to $25, or imprisonment 10 days in county jail.		Free text-books.				
New York	8-14	14 weeks.	Trustees of school districts, presidents of union schools, or officers designated by boards of education.	Fine of $1 for first offense, and after that $5 for each week's failure.	Institutions designated by school officers.	Free text-books.	13	13-14	14 weeks, preceding year.	Must teach spelling, reading, writing, geography, English grammar, and arithmetic.
North Dakota..	8-14	12 weeks.	Presidents of school boards and boards of education.	Fine of $5 to $20 for first, and $10 to $50 for each subsequent offense.				8-14	12 weeks, preceding year.	Must teach branches usually taught in public schools.
Ohio....	8-14[2]	20 weeks in cities, 16 in country districts.	Truant officers.	Fine of $5 to $20.	Juvenile reformatories.	Free text-books and clothing.	12	Under 14	20 weeks in cities, 16 in country districts.	
Oregon....	8-14	12 weeks.	Directors and clerk of school districts.	Fine of $5 to $25 for first, and $25 to $50 for each subsequent offense.						Must teach "such branches as are usually taught in primary schools."
Rhode Island...	7-15	12 weeks.	Truant officers appointed by town or city government.	Fine of not more than $20.	Confinement, discipline, and instruction.		10	10-15	12 weeks, preceding year.	Teaching must be in English language.
South Dakota ..	8-14	12 weeks.	Presidents of school boards.	Fine of $10 to $20.				8-14	12 weeks, in same year.	
Utah..	10-14	16 weeks.	School trustees and presidents of boards of education to inquire into cases of neglect of duty.	Fine of not more than $10 for first, and $30 for each subsequent offense.						
Vermont.. ...	8-14	20 weeks.					10	10-14	20 weeks, preceding year.	
Washington ...	8-15	3 months.		Fine of $10 to $25.						
Wisconsin......	7-13	12 weeks.	School directors, presidents of boards of education, or truant officers appointed by such boards	Fine of $3 to $20.	Schools designated by parents or guardians.		12			
Wyoming......	7-16	3 months.	County superintendents of schools.	Fine of not more than $25 for each offense.						

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[1] 8-15 in cities and towns where opportunity is given for industrial education.

[2] 8-16 when not employed.

But what shall be said of the rest of the country? In New York State, outside of the great cities, practically nothing has been done to make compulsion effective. In Massachusetts, Rhode Island, and Connecticut the towns and villages have been brought under the operation of the law to a very considerable extent. In Ohio, encouraging progress is being made under the law of 1889. Here and there through the country are isolated instances of enforcement, but for the most part, in more than a score of States, these laws have apparently not only failed to affect school attendance to any appreciable degree, but have tended by their very inefficiency to weaken the public school system itself in public confidence. To what shall we ascribe the cause of this general failure? It was not that compulsory education was a foreign innovation, ill-adapted to American conditions. It is true that foreign models were studied in the drafting of our State laws, but the principle itself, as has been shown in the preceding papers of this series, had a very respectable American lineage. If it was un-American, it is difficult to see what feature of our modern school system is not open to the same charge. It must be admitted that too many States have tried to deal with this question (as with others) without reference to the state of public sentiment, and in this country such a course is always fatal to the success of any movement. In many localities, doubtless, compulsion is at present quite impracticable—for instance, in portions of the new West; but practicability has been the last factor to be considered, usually, in framing compulsory legislation. Even in some of our Eastern cities, there is an absurd demand being made in these days for the enforcement of attendance laws which cannot be enforced because the school accommodations are insufficient for the children who apply for admittance. But in country districts, in States where ample school facilities are provided, difficulties have not been wanting. It has been urged that a more centralized system is needed, placing the responsibility for enforcing the laws on State officers, but in Connecticut, where centralization has all along been the order (and with apparently successful results), it is still acknowledged that without the co-operation of local authority little can be done; and this co-operation is sought by compelling the towns and villages to appoint truant officers and establish truancy regulations, on penalty of forfeiting a portion of their respective shares in the school fund.

The danger of an illiterate population of foreign birth is probably not everywhere so great as Rhode Island's experience would indicate. Recent investigations in New York City among the children of the tenement districts are rather encouraging than otherwise.[10] They seem to show that a very large proportion of the New York children of foreign parentage are not only willing but eager to receive instruction. The chief difficulty seems to lie in the disgracefully inadequate facilities afforded.

Conclusions should not be hastily drawn from an experience so varied as has been that of the twenty-eight States and territories which have made compulsory education a part of their respective school codes. It has been the aim of this series of articles to present both facts and theories, but to do this without regard to any preconceived notions of the issues involved. American conditions only have been considered, as it was believed that a study of them would be of more profit than any investigation into foreign methods or systems. Unsatisfactory and even discouraging as the result of this study could not fail to be, it still remains apparent that by persistent and intelligent effort much may be done to remedy the evils of non-attendance and truancy which exist to-day in so many American communities. It has also been shown that mere legislation is not the end of the state's duty in the matter, but only the beginning, and that vigorous official administration is essential. Such administration, to be effective, must of necessity be expensive. No State should enter on a compulsory policy without counting the cost, but no State should avoid such a policy *because* of the cost.

WILLIAM B. SHAW

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[10] J. A. Riis, "Children of the Poor," *Scribner's Magazine*, May, 1892.

IV

RESULTS UNDER AN ELECTIVE SYSTEM, (II)

REQUIRED COURSES

Another fruitful comparison of results is that which concerns the required subjects.

As mentioned elsewhere, the regulations provide that every candidate for a degree shall have had one year each of English literature, rhetoric, science, and mathematics, and two years of language other than the vernacular. From the accompanying table it appears that, excluding successively the special students in each class, there was an average remainder of 160 students, three-fourths (seventy-six per cent.) of whom elected of these required subjects more than the minimum prescribed.

TABLE J.—WORK IN REQUIRED SUBJECTS.

Number.	*Required Subjects.*	*Number of Cases.*	*Specialists.*	*Remainder.*	*Number who took more than required.*	*Per Cent.*
1	English—1 year	192	18	174	128	74
2	Foreign Languages—2 years	192	69	123	70	57
3	Science—1 year	192	32	160	133	64
4	Mathematics—1 year	192	8	184	152	83

Of the numbers above (marked "remainder" in the table) forty-six took the minimum only of prescribed English; fifty-three the minimum amount of foreign languages; twenty-seven of sciences; and thirty-two of mathematics. These are out of a total of 192 students and indicate an evident selection of studies, not because of compulsion, but through personal motives.

Further statistics show that for one-half of them this excess was for one year or more. That is, excluding specialists, one-half the remainder took two years of English, science, and mathematics, each, when one only is required, and nearly four years of language instead of two. In no general division of the course is it clear, or even suggested, that the number or distribution of elected subjects, or courses, was measured by the minimum requirements. Whatever other influences operated to determine the individual courses, "prescription" seems not to have been needed for more than a small minority of the students. Indeed, this fact appears more strongly when it is shown, as in the following table, that, excluding the sixty-five special students, from eighty to one hundred per cent. of the remainder elected one year or more of the humanities, none of which are on the required list:

TABLE K.—NUMBER ELECTING WORK IN THE HUMANITIES.

Number.	*Subjects.*	*Graduates.*	*Taking one year or more of humanities.*	*Per Cent.*
1	In English..	18	14	78
2	In Ancient Languages..	37	31	84
3	In Modern Foreign Languages................. ..	32	26	81
4	In Science	32	25	78
5	In Mathematics.......	8	8	100
	Total............	127	104	82

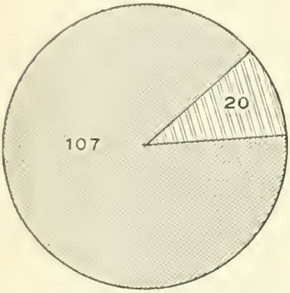
Obviously, under these conditions—and there is nothing in the present collection of statistics to show that the case would be materially different for the so-called "required subjects"—there is no need to explicitly set off history or its allied branches as "necessary to a liberal education," and require everyone to take a term or a year of this group, however desirable such knowledge may be for a free, democratic people.

The whole history of the experiment in Indiana University goes to show that what is voluntarily given of effort or patronage is more fruitful than credit sought under stress.

And the historical do not appear to have suffered neglect alongside of the studies "prescribed."

POSSIBLE OBJECTIONABLE TENDENCIES

It will, perhaps, be admitted, however, that, in the aggregate, the balance of the four lines may be fairly preserved, and yet individual cases reveal distortions and disproportions that would vitiate the whole argument, and condemn the policy.



Graphic Illustrations of Table K.

Circle = 127.

▥ = 20 = Number who took less than one year of work in the Humanities.

▭ = 107 = Number who took one year or more of work in the Humanities.

65 = Number excluded who took their degrees in these departments.

Let it be conceded at once that it is the individual course by which the working of any system is to be finally approved or condemned. Not all can be perfect; certainly it will not be contended that they were so under the old policies. But the majority must be good. Divergences from the average must be neither too great nor too numerous. The average course may not be an ideal one, but it should be an approximate standard by which to measure the individual courses. These, in the last analysis, must pass judgment upon both the theory of the courses and their administration. What *are* the extremes—both high and low? Is the concentration of time and energy, under the stress of personal interest, upon a chosen subject, so intense as to leave inconsiderable place for other fundamental means of training? Does a major course mean an exaggerated devotion to one or a few subjects, and a minimum attention to each of the remaining many? Or, what would be equally vicious, may the averages discovered coexist with absolute neglect of one or other of the great groups of knowledge, of experiment, and discovery, making up the aggregate course?

In any sociological study, it is quite as helpful to know the exceptional cases and the conditions of their development; to have discovered the law of their projection, or the presence of new factors whose influence may become general, as to have mapped every normal group of phenomena, knowing them to be normal.

What are the distortions, then, under the elective system, and what are their conditions?

FORMS OF DEFECTIVE COURSES

These defective courses, as may be inferred from the previous study and from the preceding paragraph, are of two kinds: 1. Those that are distorted by an abnormal emphasis put upon a preferred line of study, one-sided courses, without balance, with narrowing tendencies, and so more or less whimsical and irrational. 2. Scattering courses, or those in which all the privileges of option are employed to increase the number of subjects; courses in which many-sided information is made the end; otherwise aimless courses, superficial and disintegrating.

Of the two it would be difficult to decide which is least objectionable. Considered simply as courses, the immediate ill-effects of the latter would perhaps be more serious. Continuance in the former would be more difficult of correction. Smattering of knowledge may lend a certain individual satisfaction; the narrower course contributes more to society. A rational system must provide defense against both. In this, I take it, lies the strength of the traditional classical training. As shown by figures elsewhere presented, the proportions of the four groups did not differ greatly from those of to-day; and in the limited number of subjects offered to students there was positive protection against dissipation. Indeed, in the management of the earlier schools, and even the recent ones patterned after them, there is much to commend. For a certain portion of their students the single course offered was perchance just suited. It was integrated and serious. Recommended by long usage and contemporary learning, it was accepted by a larger proportion of would-be students than it might be to-day. It was not cursed by a bald utilitarianism. What made the old course good for the few, it is contended should be made a principle fitting some course to each of the many.

ONE-SIDED COURSES

By one-sided courses are here meant those that, taking the minimum of studies prescribed as common to all, are chiefly made up of some one more or less narrow line of studies or training to the neglect of most others. Such course is unbalanced in that not all, but most of it is given over to a relatively small group of phenomena, while ignoring its universal relation, or its connection with other phenomena. Obviously, however, such college training is a variable quantity. Its distortion consists less in what is included of excess, than the much or the many things omitted. It is one-sided, and so abnormal, chiefly because of what it is not or does not have. Moreover, the distortion varies with the subject. In a general average showing 47 per cent. of language, 24 per cent. of the humanities, 18 per cent. of science, and 11 per cent. of mathematics, 50 to 60 per cent. would not, perhaps, be regarded as unreasonable in language, though excessive for either of the other groups.

Table L presents a list of thirteen subjects, with the number of courses in each, showing a proportion above a specified per cent. assumed to be excessive. Obviously both the table and the conclusions are only tentative and suggestive. The twelve courses noted in the first column under science, and the thirty-four under language, are introduced as possible distortions and explained elsewhere in the text. Concerning all other cases, the numbers in a given column include those which follow relating to the same subject. Those showing less than sixty per cent. of language are not mentioned, as being in no sense out of proportion: so of science and the humanities falling below thirty-five per cent. The principal apparent irregularities, it will be noticed, are among the courses having more than seventy per cent. of language, and more than thirty-five of science and the humanities each.

TABLE L—ONE-SIDED COURSES

No.	*Subjects.*	35–45 *per cent.*	*Above* 45 *per cent.*	*Above* 50 *per cent.*	*Above* 55 *per cent.*	60–70 *per cent.*	*Above* 70 *per cent.*	*Above* 75 *per cent.*
1	English						5	1
2	Greek						6	2
3	Latin						1	
4	German						6	1
5	French						2	1
	TOTAL, LANGUAGE					34	20	5
6	Botany		1			1		
7	Zoölogy		4		2			
8	Chemistry		3		1			
	TOTAL, SCIENCE	12	8		3	1		
9	History		5	1				
10	Sociology		5	1	2			
11	Philosophy		2	2				
12	Pedagogics		1					
	TOTAL, HUMANITIES		13	4	2			
13	Mathematics							

The tables will serve to present the facts, and others must be left to make their own inferences. All the cases have been included that were thought in any view, however extreme, to fall within the class of distorted courses.

(1) IN LANGUAGE

Of the thirty-four included as making sixty to seventy per cent. of their courses language, all were specialists in some language. Of the remaining twenty, but five show more than three-fourths of the total course taken from this class. Of these, two, one in German and the other in French, are each credited with something more than the required science and mathematics, with an equal amount of history or related subjects. Indeed, with the exception of cases 2 and 3 in the table (M) the last statement is true of all of them. Nine took about the minimum only, of science; eight, the required mathematics. Three others approximated the average in mathematics (double that prescribed), and two a like portion of science. Ten are credited with at least one year of history each, and two an amount equal to the general average of the group.

Of the five courses mentioned above, that in English (3 in the table), not only presents an excess of language (77.8) but has credit for no science whatever. Although the major subject was English, fifty per cent. at least, more time was given to German and French, each. No Greek appears. The student, in this instance, has been, since his graduation in 1888, an instructor in English, in an Eastern institution, and has recently won distinction by a literary composition of real merit. The last two of the five courses noted were in Greek. One (5 in the table) had nearly two years of science, but a minimum of mathematics. In the other (4) along with the minimum of science study, dignified, however, by concentration of time and attention upon physics alone, there was an excess of mathematics. In the four years, there was nothing of the humanities. Eighty per cent. of the total course was language; two-fifths comprised in the major study (Greek) and one-fourth in German. This, except that the disproportion among the groups was greater, it will, I have no doubt be conceded, was a less objectionable course than the others, inasmuch as what was here lost in the neglect of the historico-ethical subjects, might easily, and probably was made up in part at least, through the very extended study of language. Of the remaining fifteen courses, six belong to the same category. The excess of language was subtracted from history and related subjects whence it could most easily be taken, and most safely.

This leaves nine top-heavy courses in language, whose defect lies in the fact that the enrichment of the specialty was chiefly at the expense of science.

These appear as cases 5 to 13 in the accompanying table, and will be found to be monotonously alike.

TABLE M—FOURTEEN ONE-SIDED COURSES IN LANGUAGE

Number.	*Case.*	*Specialty.*	*Per Cent.*	*Other Languages.*	*Science.*	*Humanities.*	*Mathematics.*	*Terms.*		*Year.*
1	130	German..	32.6	42.8	5.5	8.2	10.9	37		1889
2	78	French	12.6	64.2	8	6.5	8.7	46	English, 17.4 German, 23.6	1887
3	71	English.........	16.6	61.2		13.9	8.3	36	German, 25 French, 25.1	1888
4	201	Greek...........	32.4	48.2	6		13.4	36	German, 21	1891
5	231	Greek....	29.2	46.7	12.1	4.9	7.1	41		1892
6	90	English..........	35.9	35.8	7.8	12.8	7.7	39		1888
7	208	"	37.9	35.3	8.6	8	10.2	37		1891
8	99	German..........	30	40	12.5	10	7.5	40		1888
9	103	"	30.5	41.5	10.2	10.2	7.6	39		1888
10	212	"	30.7	44.1	8.4	8.4	8.4	36		1891
11	126	Greek...	29.4	41.2	11.8	10.2	7.4	40		1889
12	146	"	32.4	40.5	8.1	10.9	8.1	36		1889
13	207	"	37.5	35.4	9.1	10.5	7.5	39		1891
14	216	"	29.1	41.7	7.9	13.4	9	37		1891
			29.8	44	8	9.5	8.7	38		

(2) IN SCIENCE

Having in mind that the amount of science in the average course is less than twenty per cent., there is mention made in the table of a class of eleven whose records show an average of from thirty-five to forty-five per cent. All of these were specialists in this group but one. Notwithstanding this major course was a language, the proportion of science was about double the general average. The entire course was weak chiefly in mathematics and the humanities; yet but two subjects of the latter (history and economics) were taken for less than two terms each. (The subject of this course is a young man who has since graduated from the Michigan University Medical School.)

Of the eight whose science constituted forty-five per cent. or more of their courses, two are credited with a deficiency among historical subjects, though one had two terms of history and the other three terms of philosophy. The remainder all show a greater or less deficiency in language (the per cent.

TABLE N—NINE ONE-SIDED SCIENCE COURSES

		Spec.	*Per Cent.*	*Other Sciences.*	*Lang.*	*Human.*	*Math.*	*Terms.*	*Year.*
1	113	Eng.	19	37.3	34.2	3.8	5.7	53	1888
2	166	Zoöl.	22.8	25.4	35.6	5.5	10.7	37	1890
3	128	Chem.	28	22.3	35.9	5.5	8.3	36	1889
4	122	Zoöl.	30.9	16	29.4	14.2	9.5	42	1889
5	80	Chem.	30	25.6	27.8	8.3	8.3	36	1888
6	119	Zoöl.	43.6	19.2	19.9	9.8	7.5	41	1889
7	147	Bot.	18.5	41.5	30.1	9.4	10.5	38	1890
8	85	Chem.	23.3	22.2	20.5	12.5	21.5	40	1888
9	145	Zoöl.	17	48.9	24.3		9.8	59	1889
	GENL. AVER.		25.9	28.7	28.6	7.7	10.2	42	

varying from twenty to thirty, or half the average), and four of them a meagerness in the humanities as well. One of these (the seventh in the table) specialized in botany but spent even more time upon zoölogy; was weak in language (30), yet had twice as much of it as of his specialty. Another (8) had a minimum of language, but was strong in mathematics, giving to this but a fraction less time than to his specialty—chemistry. The sixth case tabulated is that of a young man, already known before his graduation as an entomologist of repute, and who came to an untimely death while on a scientific expedition through Florida. This course was seriously lacking in language-culture, though it represents five distinct languages, and so exhibits both kinds of distortion. The one remaining case presents a major course in zoölogy. There is the full amount of mathematics, and about the average of language; though of both the latter and physics there was each more than of the major subject. No part of the entire course was taken from the class of the humanities. This young man, graduating in 1889, is now and has been for two years connected with the U. S. Fish Commission at Washington, D. C.

(3) IN THE HUMANITIES

From the table (L) it will appear that there are thirteen courses estimated as, perhaps, distorted because of an irrational centering upon the humanities. A little more than half of each course was made up from this group. Eight show a marked deficiency in language, though in every instance the aggregate of the humanities and language exceeds the combined proportions of the two in the total list. Four of the remaining courses show from one-third to one-half of the general average of science, and give one-third of each to language. That is, these four each took the required science, a fraction more than three years of language, and double the mathematics prescribed. Not a bad showing, after all concessions are made.

TABLE O—FIVE ONE-SIDED COURSES IN THE HUMANITIES

		Specialty.	*Per Cent.*	*Other Humanities.*	*Languages.*	*Science.*	*Mathematics.*	*Terms.*	*Year.*
1	200....	Hist.	26	24.4	30.1	7.4	12.1	37	1891
2	158.................	Hist.	24	24.1	32.4	8.1	11.4	37	1890
3	179.................	Hist.	23.3	25	31.5	7.7	12	38	1891
4	189.................	Hist.	24 4	24.5	34.2	8.2	8.2	36	1891
5	121.....	Soc.	18	30.9	43		8.1	37	1889
	GENERAL AVERAGE..		23.1	25.8	32.2	6.3	10.4	37	

In the one remaining case the course was specialized in sociology. It was slightly deficient in mathematics, included seventeen terms of language (sixty per cent. of it in the ancient classics) but double the average of the humanities, about equally distributed to history, sociology, and philosophy. It included no science. The subject of this course graduated in 1889 and in that year took the first prize offered by the American Protective Tariff League to college students for the best essay on economic questions.

(4) IN MATHEMATICS

Of the nine who are charged with an excess in mathematics (twenty-eight per cent. or more) seven show an average of their major subject exceeding one-third of their respective courses. In five of these only is there apparent any considerable lack: two (3 and 4 in the table) being low in science; two (6 and 7 in the table) low in the humanities; and one (8) low in language. In each case the amount taken was one-half or less of the general average.

TABLE P—ONE-SIDED COURSES IN MATHEMATICS

No.	*Courses.*	*Spec.*	*Per Cent.*	*Lang.*	*Science.*	*Math.*	*Humanities.*
1	Case 219. .	Phys.	18.1	31.9	9.7	28	12.3
2	Case 153...	Math.	32.4	29.4	19.4		18.8
3	Case 223...	Math.	33.5	34.4	8.8		23.3
4	Case 123....	Math.	34.2	45.7	7.5		12.6
5	Case 170 ..	Math.	35	32.5	17.5		15
6	Case 161....	Math.	36.1	30.6	22.2		11.1
7	Case 227....	Phys.	33	30.8		36.2	
8	Case 79.....	Math.	37.3	19.7	14.7		28.4
9	Case 186....	Math.	38.9	32.5	14.3		14.3
	AVERAGES...		33.2	31.9	12.7		15.1

For all nine courses the proportion of language was nearly thirty-two per cent.; and in but two instances did it fall below thirty per cent. In one of the five mentioned above (8) it constituted less than one-fifth of the course. The amount of science in five of the nine courses tabulated is above the average. In two the major subject was physics, though in both the proportion of mathematics was more than twice the general average, and greater even than that of the specialty. One of these last (7) was seven-tenths science and mathematics combined, and had one year more of language than is prescribed, but no work in the humanities. The only science taken was that of the major subject—physics. The entire course was made up from five departments—three languages, (English, Greek, and German), one science, and mathematics.

SCATTERING COURSES

What constitutes a loose, or diffuse, or scattering course, is even less easily determined than to fix the conditions of a one-sided course.

If the purpose of the college as to science is realized in fixing the habits called scientific, and not in collecting mere information; and as to language, if the ideal result is the culture and mastery that come from abundant and well-directed study of language, rather than the possession of many languages; then, to have spent the time at command upon fewer sciences or fewer languages would seem to measure the ideal of liberal culture as to these subjects. To attempt more may be only dissipation. The effort would be wasteful as opposing concentration of resources, which is the heart of efficiency. What are the facts as to the tendency in the present policy? Does individual choice lead to scrappy courses and wasteful training? Are short and partial courses multiplied as the system develops?

TABLE R—NUMBER OF DIFFERENT LANGUAGES AND SCIENCES TAKEN

Number.	*Subjects.*	*Five Sciences.*	*Four Sciences.*	*Three Sciences.*	*Two Sciences.*	*One Science.*	*Five Languages.*	*Four Languages.*	*Three Languages.*	*Two Languages.*
1	English	2	8	5	3	2		12	6	
2	Ancient Classics	4	4	13	15	5	10	18	9	
3	Modern Languages	3	7	17	6	4		26	6	
4	Biological Sciences........ ..	10	3	1			1	6	4	2
5	Physical Sciences............	9	4	4	2	1		5	11	2
6	History and Economics.... .	6	12	11	7	2	4	11	27	6
7	Philosophy	1	3	8	5		1	9	9	
8	Mathematics		3	2	1	1	1	2	2	2
	TOTALS	34	42	53	39	15	17	89	74	12

Considering the organization as presenting fifteen fairly distinct departments, the average number of these "touched" by the 192 students is a fraction less than eleven. One-third of the entire number of courses was made up from ten departments or fewer; twenty only reached more than a dozen departments.

The table presents the distribution of the languages and the sciences, with a classification showing how many of each were taken in each course. From which it appears that out of the total number of cases, 17 included five languages; 89, four languages; 74, three languages; and 12 but two each.

Similarly, 34 of the number took work in five different sciences; 42, in four sciences; 53, in three; 39, in two; and 15 in but one each.

Of these, it is fair to say that, for undergraduate students, only those could reasonably be called scattering courses which are enumerated in the first and sixth columns. That for the general purposes of a college education, a course with not more than three sciences well followed would be greatly better is not likely to be seriously questioned. But the 42 who took four sciences, including three terms of some one, can scarcely be charged with loose or purposeless courses. Similarly of the languages. With English required of all and two years of language study beside, it is not to be expected that less than four languages would appear in the average courses. From which it results that in the fifty-one courses—thirty-four, each charged with five sciences, and seventeen, each with five languages—must be found, if at all, the scattering courses. Of the thirty-four, nine, or nearly one-third, took but three languages, and bettered their courses by so much concentration; and five of the seventeen are credited with but two sciences each, and correspondingly stronger courses because of this narrower limit in a coördinate branch.

After all this has been considered, however, there remain thirty-five courses, each having four or more languages and four or more sciences. These, something less than one-fifth of all, might have been improved. That is, upon the face of the figures, the showing is against them. But much of the deficiency is more apparent than real. Of the twenty-three remaining, charged with five sciences, each shows an average proportion of science to the total course of eight per cent., or about three terms in the standard course of thirty-six terms. But the average length of course of these twenty-three was nearly forty-five terms; it will thus be seen possible to include in each course all the required and major subjects, and do fairly continuous work on most of the others undertaken. The like facts sustain a similar statement concerning the twelve charged with five languages each. The looseness is, in part at least, nominal.

SUMMARY OF DISTORTED COURSES

Recapitulating, now, the paragraph concerning "distorted courses," it appears that there have been 88 cases investigated as to an undue prominence given to some one subject or study. Fifty-two of these show an excess of language; 19 an excess in science; 11 in the humanities; and 6 in mathematics. Out of this number but 37, or 19 per cent., of the 192 courses, were considered of sufficient importance to be tabulated (14 in language, 9 in science, 5 in history, and 9 in mathematics). Of these, 13 stood "excellent" in their classes throughout the college course, and have, by various sorts of original and valuable services since, justified their training. This leaves 24, or about 12 per cent. of the total number to whose courses serious exception might be taken because of the distortions enumerated.

The proportion of "scattering" courses is even less.

Moreover, the distortions, of whichever sort, are surprisingly impartial as to departments. Of all those mentioned, leaving out the scattering courses (for obvious reasons), not more than seven are found in any one department; these are in mathematics. Six are charged to Greek; four each to English, German, zoölogy, and history; three to chemistry; two to physics; and one each to French, botany, and sociology. Among the four groups of knowledge, also, language furnishes fifteen of these courses; science, ten; mathematics, seven; and the humanities, five.

CONCLUSION

For convenience and definiteness, there are here summarized the principal inferences formulated throughout the discussion:

1. The proportions of the four groups of subjects in the older and more recent courses, respectively, have not been materially changed.

2. The slight modification found involves chiefly the transfer of a certain amount of attention from mathematics to the humanities.

3. The first place among the languages, as indicated by its share in the average course, is now held by German.

4. Greek, however, of all the languages, presents most graduates, and the best integrated courses.

5. The biological sciences still yield first place to those called physical, both in the number electing them as collateral work, and in the proportion of each to the average course.

6. Almost five-sixths of the graduates are credited to the two groups—language and the humanities.

7. The longest and best integrated courses, also, are found among the students of these same classes.

8. Of "required" subjects less than one-fourth of the students left off with the minimum prescribed.

9. Four-fifths also, of the entire number, elected one year or more of work from the humanities, chiefly history and economics, though nothing is required to be taken from the group.

Besides these, there are certain other more general conclusions which seem clear enough, for the most part, to the writer, notwithstanding that this paper, as now presented, offers no facts that appear to lend them positive force. The study has, however, been full of unexpected hints and lessons, and in many respects class-room teaching has taken on a new significance. Without discussion, then, the following propositions are submitted as inferences fairly borne out by the investigation:

1. The principle whose policy is here discussed, and which has been followed for eight years, has improved the student body; by relating the culturing process to a well-defined and "interesting" motive.

2. By so much it has improved teaching, through the attractive force of interested learners.

3. It has rationalized deportment, in that it has dignified the motives of students.

4. It has discovered unexpected ability among students, furnishing, at the same time, opportunity for its encouragement.

5. There is an obvious tendency toward the obliteration of class distinctions, and their accompanying antagonisms.

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V

TEACHING ELEMENTARY PHYSICS

In what I shall say concerning the teaching of physics, I shall draw very largely from my own experience. I shall recommend certain practices because I have tried them and found them good. I shall recommend others, perhaps more numerous, because I have tried the opposite and found them bad.

It is not necessary that the teacher of elementary physics shall have read all the books that are written upon physics. It is not necessary that he shall have pursued his studies very far beyond the scope of his teaching. The essential thing is that he shall have mastered the elementary principles. A student may read many books and take many courses and have a reputation for much learning, and yet be and remain an unsafe and incompetent teacher for young pupils by reason of having an insecure grasp upon such facts and principles as are set forth in any good general treatise upon physics. The teacher who, in this condition, undertakes to conduct a class, is pretty sure to have an unpleasant experience for his first year or two. Time which should be spent in recreation, in sleep, or in meditating upon the best method of presenting matter to his pupils, is spent in accumulating material, and the teacher comes before his class full of newly acquired facts, but dull, heavy, and ineffective, a gun loaded to the muzzle with shot but without sufficient powder to clear the barrel.

When I began my work as a teacher of physics, I was inclined to the opinion that any part of my subject, save possibly the descriptions of apparatus as given in text-books, would, if clearly and forcibly taught, command the respect and even the interest of the ordinary student. This opinion was natural to one who, like myself, had passed through the fixed curriculum of a small college without finding anything absolutely distasteful, that had been presented with reasonable clearness and method. But time has modified somewhat my estimate of the docility of the average youth. I have as much faith as I ever had in his responsiveness to the right stimulus and influence, but I have more respect than I used to have for his discrimination. In these days of many electives, the pupil is encouraged to ask very early in his career, which one of several studies is the more profitable to him, and to govern himself accordingly. And this is as it should be. The student, sixteen or seventeen years of age, has a right to know why he is asked to learn or to do a particular thing. If he cannot be shown that a certain study which he is following is for his advantage, either he has an incompetent teacher or he is following that study too far. If he can see no use in any of his studies, his career as a student should end.

In urging that the use of every study, and every part of every study, should be demonstrable to the student, I am far from maintaining that the usefulness of any acquirement is to be measured solely, or even chiefly, in dollars and cents. The boy must be a very uncommon one, without sense of beauty or sublimity, without admiration for intellectual achievement, without interest for the welfare of coming generations, who cannot be made to feel that the phenomena of physical science, the history of its doctrines, its generalizations, its problems, its prophecies, are of interest for their own sake. The teacher should therefore cultivate a broad view of his subject. If he happens to be, like so many of us, not too generously endowed with imagination, he should seek the society, or read the books, of those to whom nature has been more lavish in this regard. He should read popular lectures and essays like those of Helmholtz, of Tait, and of Tyndall. He may even do well to read, with a large interrogation point at hand, the products of distinctly sensational writers, ardent souls who are not always correct in their principles, but to whom much may be forgiven.

Nevertheless, the purely utilitarian value of the study of physics is very great, and it should be the care of the teacher to make it as great as possible, consistently with the intellectual development of the student. One of the most distinguished among living mathematicians is said to have named the Theory of Numbers as his favorite branch of mathematics, " because it has never been prostituted to any practical use." He tells of his hunt for an elusive mathematical truth in language as fervid and picturesque as any other man could call to his service in describing the chase of a Rocky Mountain goat ; but he is a genius, and the ordinary teacher cannot safely imitate his methods. He is unpractical, but never dull. The ordinary teacher has to guard himself from being unpractical and dull at the same time.

Often a teacher fails to present matters in their due proportions, and sometimes it happens that wholesome, if unpalatable, advice will come from some frank acquaintance in a kindred subject, who knows enough of physics to see what it may do for a student, but not enough to be unduly interested in any one part of it. One must not let his pride, as a specialist, prevent his taking a useful hint, from whatever source it comes. The teacher of a certain type is not always able to let go of a subject when he knows that he had better do so. He undertakes to prepare some difficult experiment for an impending lecture, and his first attempt fails. He tries again and fails. There is yet time to prepare something else, this particular thing is not very important, but the difficulty of it piques him. He tries to think of something else, and presently finds himself back with the one thing that he cannot make go. He makes one attempt after another, falling at every move into a worse case, till at last he rests, like Br'er Rabbit in the embrace of the Tar Baby, in a state of desperation and helplessness, when his class in the capacity of Br'er Wolf appears on the scene. The teacher will presently come to see that what is hardest for himself is not necessarily best for his class, even if he can successfully meet its difficulties. Sometimes a teacher loses his hold upon a class by failure to ascertain what the pupils already know. Boys nowadays pick up many facts from popular books, from the street, from toy shops, and it is no uncommon thing for a boy thus started to be, in many particulars, some years in advance of his text-book, not an unheard of thing for him to know more about certain matters treated in the class than the teacher himself. The difficulty of suiting his instruction to the previous training of the pupils is often a serious one for a college teacher.

The teacher should consider carefully how much direct help he will give to his pupils. Too much is perhaps as bad as too little. It must be remembered that the student grows in strength by doing, not by hearing or seeing. Hard work is necessary for real discipline, but there should be no unnecessary difficulties; let the race-course be made clear and smooth, and then let the runner do his best. The first question is likely to be: Shall I teach solely by text-book and lecture-table experiments, or shall I give to each pupil laboratory work? In answering this question the teacher is likely to be powerfully assisted by the ruling authorities of the institution in which he works, but he may be able to exert a strong influence in the right direction, if he is energetic and has a definite idea of what he would like to do. It may be safely assumed that the teacher, if he is a teacher of physics from choice and not from mere necessity or convenience, will use his influence in favor of the laboratory plan. The main initial difficulties which he will meet are, (1) The cost of a laboratory and its equipment; (2) the difficulty of providing for the work in the school curriculum; (3) the difficulty of finding time for the proper supervision of the laboratory work. The first of these difficulties is not a very serious one. Elementary laboratory appliances are inexpensive in comparison with the old-fashioned lecture-table apparatus. Five hundred dollars judiciously expended will probably equip the laboratory proper of an ordinary school. If the school is small, this estimate may be greatly reduced. If it is very large, the cost will not be proportionally large, for there is a limit to the number of students that one teacher can manage to advantage in simultaneous laboratory work. A squad of twelve beginners in such work will occupy fully the attention of the teacher for the time being, if he looks after them properly.

The second difficulty is greater. Other subjects have long occupied the school programme and claim vested rights which are not to be lightly interfered with. Persistence and tact on the part of those interested in the physics teaching will be needed in dealing successfully with this particular obstacle. The practical spirit of the time works with them, however, and, if the school is a strong and progressive one, the change will come.

The third difficulty is the most serious of all. If the class is large, the laboratory method requires far more of the teacher's time than the lecture-room method. If the class is small, not more than ten or twelve, the difference is not very great, provided the teacher is nót expected to make much apparatus with his own hands. I cannot advise a teacher to undertake laboratory work if he must carry it on, without a teaching assistant, with squads of twenty-five or thirty pupils at a time. This experiment of very large squads has been tried in one or two schools that I know of, and with such results as were to be expected.

While strongly in favor of laboratory work for the whole class, yet I am not one of those who can see no good in the old text-book method of instruction, properly supplemented by lecture-table experiments. It is a great deal better than no instruction, and, in one respect, that of giving a general connected view of the whole range of physics, it is distinctly superior to the laboratory method, as the latter is sometimes practiced. Laboratory work conducted with a mere manual of directions for experiments leaves woeful gaps in the pupil's knowledge. On the other hand, the text-book and lecture-table method used alone gives a comparatively superficial knowledge. The best method is a combination of the two. The student should concentrate his laboratory work upon a few well selected points of attack. These are the battle-fields, and from them the surrounding territory may be swiftly occupied, but occupied it should be. The geological parties of the Harvard summer schools do not undertake to walk over the whole country. They may explore in detail certain portions of eastern Massachusetts, of the Connecticut Valley, the Hudson Valley, perhaps parts of Pennsylvania, but they would certainly miss the full benefit of their labor if they failed to note the general features of the country between these points.

The young student in laboratory work, and the old one for that matter, is in danger of feeling, when his experiment is finished, his observations arranged, and his result calculated, that he is done with the matter. Unless he is well looked after he will fail to draw the moral from his work. He will fail to note its applications and its connection with other parts of the general subject he is studying. It is, I suspect, a very general experience with teachers to be disappointed with the performance of their first class of laboratory pupils when confronted by written questions which they have not specifically dealt with in their experimental work. And so it happens that some teachers object to having a written test applied to the results of laboratory instruction. Of course the valuable mechanical experience and skill which result from school work cannot be shown upon paper, but the degree of intelligence with which the pupil does his experimental work may be ascertained perfectly well by a written test, and to object to such a test is to take an attitude too much like that of an ordinary handicraftsman, who dismisses any question relating to his business, but not touching points absolutely essential to the mechanical performance of his tasks, with the remark: "You are getting too theoretical for me. I'm practical." That spirit is proper enough for the craftsman. In fact, it is the spirit that prevents him from becoming anything more than a craftsman, but it is not the spirit in which boys should be educated. The teacher must see to it that, between the periods of their active occupation with apparatus, the pupils shall have time to think; and he must see to it that they do think. This he can accomplish only by setting them stated tasks that will exercise their brains, and bringing them to book on these tasks.

This seems to be the proper place to say, with regard to a notion that has had a certain vogue, that, if the object of a laboratory course is to teach physics, the pupil should not be required to make much of his own apparatus. The student who makes his own apparatus is likely to do nothing else. He will spend weeks of time upon trifles and will finish his course with the skill, the pride, and the intellectual standards of a jack-at-all-trades. I believe that boys should be taught the use of tools, but the physical laboratory is not the place for such teaching. Manual skill is an extremely useful accomplishment, or rather endowment; I devoutly wish I possessed it. But when I see how those who are distinguished for it are tempted to spend their time in the delight of exercising it to the harm of more important interests, I sometimes fall back with a certain comfort upon the remark of a college classmate, "I wouldn't be a good fiddler for a thousand dollars."

It is equally important that the teacher should not have to manufacture much of the apparatus. His time and strength should not be devoted to manual labor which a mechanic could do more rapidly and better.

I find my justification for the added expense and work of the laboratory method in the increased interest and mental activity of the pupils, whereby the teacher becomes a guide and leader rather than a driver; the stronger hold which the student gets upon the fundamental facts and principles of the science from having come into hand-to-hand engagements with them; the consequent greater command of these facts and principles in the emergencies of life, in the continued study of science, in the practice of a learned profession, in commercial ventures, in the common experience of the ordinary householder.

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VI

EDUCATION IN FOREIGN PERIODICALS

Sex in Education

FROM AN ADDRESS BY SIR JAMES CRICHTON BROWNE, M. D., LL. D., F. R. S., REPORTED IN THE "LANCET"

"To catalogue, in the briefest way, the bodily differences between men and women which underlie their intellectual disparities, would exhaust the time at my disposal. They are universal and intimate, and involve every organ and tissue. They extend from cuticular appendages to the marrow of the bones, from the crown of the head—for, according to Broca, the female cranium is less elevated than that of the male—to the sole of the foot—for, according to Delaunay, woman has a plantar arch flatter than that of men, which perhaps accounts for her partiality for high-heeled boots. I shall not attempt such an extensive anatomical survey. My present purpose will be served by directing your attention to certain sexual differences in one bodily organ—the brain, differences which have been greatly lost sight of, which must require further investigation, but which are of peculiar significance in connection with intellectual manifestations.

"And, first, among cerebral differences between the sexes, I would refer to mass and weight, qualities with which one almost insensibly associates power and strength. Now, it is a matter of common observation that women have smaller heads than men, and it is a matter of scientific observation that in all peoples and races, without exception, the absolute weight of the entire brain is on the average greater in men than in women; though, of course, individual women do sometimes possess larger and heavier brains than individual men. But it is also a matter of scientific observation that there is a correlation between brain weight and stature, and, laying hold of this fact, the advocates of women's rights and mights have argued that the deficiency in her brain weight, when compared with that of man, is no more than is to be accounted for by her fewer inches. But this position is quite untenable. I do not know a trustworthy standard of the brain weights of healthy natives of this country to which to appeal, but I can submit to you a table showing the results of the weighing of the brains of a large number of insane persons, all English, Scotch, or Irish, but mostly English, which in this relation is absolutely reliable. In this table are summed up the brain weights of 1600 persons—945 male and 655 females—ranging from ten to eighty years of age, the weighing of the brain having been in each case conducted by myself or under my own supervision. You will observe that the brains of males exceeded those of females in weight by 127.68 grams (or 4.50 ozs.) on the average; and that, after allowing for differences of stature—taking 5 ft. 7 in. as the average male height, and 5 ft. 2 in. as the average female height—there is still an excess of brain weight of 29.71 grams (or 1.05 ozs.) in favor of the male. This is a very substantial difference, and if we recollect that the brain of the ant—of the mental power of which Sir John Lubbock has spoken in such complimentary terms, declaring that they differ from those of a man not so much in kind as in degree—is of the size of a pin point, we shall realize that an extra ounce of brain matter within the human cranium may imply an enormous mental difference. But it is certain that the actual difference in brain weight between healthy English men and English women is much more than one ounce. My tables, as I have told you, deal with lunatics dying in asylums, and among them organic diseases of the brain, involving loss of substance, are at least twice as frequent in men as they are in women. Women are oftener attacked by insanity, but men oftener die of it. General paralysis of the insane, atrophy and softening of the brain, senile dementia, and other diseases causing wasting of the convolutions, are far more fatal to men than to women, who, when they die in asylums, succumb most frequently to bodily diseases which do not seriously interfere with the nutrition of the brain. And so it comes about that,

Table I—Brain Weight

	AVERAGE WEIGHT OF BRAIN		AVERAGE HEIGHT		EXCESS OF MALE OVER FEMALE BRAIN WEIGHT		EXCESS OF MALE BRAIN WEIGHT AFTER ALLOWING FOR HEIGHT	
SEXES	GRMS.	OUNCES	METERS	FT. INS.	GRMS.	OUNCES	GRMS.	OUNCES
945 Males	1350.54	47.64	1.702	5 7	127.68	4.50	29.71	1.05
655 Females	1222.86	43.14	1.575	5 2	—	—	—	—

of the brains weighed in the *post-mortem* theater of an asylum, those of men are on the average much more water-logged and reduced below their normal bulk than those of women. The effect of organic diseases and the atrophic changes they induce in lowering, in my tables, what is the normal difference between the male and female brain, may be statistically demonstrated from these tables themselves. It is from thirty to fifty years of age that the mortality from general paralysis which destroys four men to one woman, and from other fatal forms of organic brain disease, preferentially attacking men, except, of course, senile dementia, almost exclusively occurs, and it is in this section of life that the sex difference in brain weight in my tables falls to the lowest point at the very time when, under normal circumstances, it ought to be greatest. The average excess of weight in the male, as compared with the female brain, from thirty to fifty years of age, in my tables, was 123.5 grams, or 4.37 ozs., while from twenty to thirty years, when deaths from organic brain disease are rare, it was 169.9 grams, or 6.01 ozs. All available evidence points to the conclusion that the male brain exceeds the female brain in weight in this country to an even greater degree than has been hitherto supposed. And that the smaller size of the female brain is a fundamental sexual distinction, and is not to be accounted for by the hypothesis that environment, educational advantages, and habits of life, acting through a long series of generations, have stimulated the growth of the cerebrum in one sex more than in the other, is made clear by the fact that the same differences in brain weight between men and women have been found in savage races. And not only is the male brain heavier than that of the female, but it has a wider range of variation in weight. The very big brains and the very small brains are encountered, just as are geniuses and idiots, giants and dwarfs, more frequently among men than among women.

" I have said that an extra ounce of brain matter within the cranium might involve an enormous mental difference. It would do this were it generally and equally distributed, and it would do so in a still more striking manner were it localized in a certain region of the cerebrum; and there are grounds for believing that there is a difference in the balance of parts in the male and female brains respectively, and this difference I adduce as the second sexual distinction between them. Broca, no mean authority, has declared that the occipital lobes are more voluminous in the female than in the male, and my own observations, published in *Brain* in 1880, confirm, as far as they go, his conclusion, and show that while the frontal lobes are equally developed in both sexes, the parietal lobes, corresponding roughly with the motor area of Ferrier, are larger in the male than in the female, and the occipital lobes, certainly sensory in their functions, are larger in the female than in the male.

"The third brain difference between the sexes to which I would allude is one of convolutial arrangement, which cannot yet be accurately defined, but which the examination of a series of photographs of brains of men and women, which have been stripped of their membranes, pretty clearly reveals. The brains of women, like their bodies generally, are, upon the whole, more symmetrical than those of men. The difference which I have found in the weight of the hemispheres points to this conclusion, for in males the right hemisphere exceeds the left in weight by 3.7 grams, and in females by only 2.1 grams; but pathological considerations as to the regional distribution of wasting in organic diseases forbid me to attach too much importance to this observation, and I prefer to trust to mere ocular inspection, which will, I think, bring home to anyone who diligently uses it the superior symmetry of the female brain, due to its comparative poverty in secondary gyri.

"It is in the internal structure of the brain, in the depth and arrangement of its gray matter, in the size, form, and connections of the cortical cells in different areas, that the most essential differences between the male and the female brain in all probability reside; but the internal structure of the brain in this relation is as yet uninvestigated. I may mention to you, however, one fact which suggests some difference in the constitution of the gray matter of the brain, in the two. During a very laborious inquiry into the specific gravity of the gray matter of every gyrus of the brain, which I carried out some years ago, I succeeded in obtaining three standard brains of perfectly healthy adults—two men and one woman—killed in accidents, and in these I found that while the specific gravity of the medullary substance of the brain was alike in all in each region—namely, 1044—that of the gray matter varied remarkably. To take the frontal convolutions as an example; in the one male, the gray matter of these had a specific gravity of 1037, in the other of 1036, but in the female its specific gravity was only 1034. And not only in the frontal region, but in every convolution the specific gravity of the gray matter was lower in the female than in the male. I do not lay any great stress on the observation of a single case, but in several cases of death during acute insanity, which I examined, in which there had not been time for the establishment of degenerative changes, the specific gravity of the gray matter in every lobe of the brain was lower in the female than in the male, while the specific gravity of the white matter always closely corresponded in the two. In all degenerative diseases of the brain, and especially in senile decay, there is a reduction in the specific gravity of the gray matter, which sometimes falls as low as 1028 in the frontal region; and the fact—if it be a fact—that the gray matter in the female brain is of less density than that in the male brain, must mean that it is a less highly nourished and developed tissue.

"And there is still another brain difference between men and women which I must submit to you, and that a very momentous one—namely, vascular supply. During the last four years, Dr. Sydney Martin and I have, as opportunity has offered, carried on an inquiry as to the size of the great arteries that supply the brain. The details of our observations, which have been conducted by Dr. Sydney Martin with scrupulous care, and by new methods insuring, I believe, great accuracy of measurement, will be communicated to the Royal Society when they are complete; but I may mention now one or two of the results at which we have arrived. We have found that the diameters of the internal carotid and vertebral arteries, taken together, are slightly greater in the male than in the female. Their combined diameter is 8.2 millimeters in the male and 8.0 millimeters in the female; but when the difference in weight of the male and female brain is taken into account, it is found that in proportion to brain weight their diameter is greater in the female than in the male, and so it appears that upon the whole the female brain receives a larger supply of blood in proportion to its mass than does the male brain; but of course it is to be remembered that the blood going to the female brain is poorer in quality than that going to the male brain, and contains only 4,500,000 corpuscles to the cubic millimeter, instead of 5,000,000 in the case of the male. But

Dr. Sydney Martin and I have found, further, that the internal carotid and vertebral arteries, when measured separately, display a marked difference in caliber in male and female brains respectively. In ten male brains of adults free from brain disease, and ranging from twenty-five to thirty-six years of age, the internal carotid arteries had an average diameter of 2.8 millimeters on the right side and 2.75 millimeters on the left side, while the vertebral arteries had an average diameter of 2.2 millimeters on the right side and 1.875 millimeters on the left side; whereas in ten female brains of adults free from brain disease, and ranging from twenty-five to forty-three years of age, the internal carotid arteries had an average diameter of 2.6 millimeters on both sides, while the vertebral arteries had an average diameter of 2.3 millimeters on the right side and 2.075 millimeters on the left side. It thus appears that the distribution of the blood in the male and female brain, respectively, varies to a considerable extent. The internal carotid arteries, with their great branches—the anterior and middle cerebral arteries supplying the supra-orbital convolutions and island of Reil, the gyrus fornicatus, the Rolandic area, the angular gyrus, and the first temporo-sphenoidal lobule—are much larger, both absolutely and relatively, in the male than in the female brain; but the vertebral arteries which supply the occipital and temporo-sphenoidal lobules are larger in the female than in the male brain, and the basilar artery, which is practically a continuation of the vertebrals, is also larger in the female brain, where its average diameter is 2.8 millimeters, than in the male brain, where its average diameter is 2.675 millimeters. It might be thought that the free anastomosis provided by the circle of Willis renders comparatively unimportant differences of caliber in the internal carotid and vertebral arteries, and must equalize the blood currents to the different regions of the cerebrum; but the fact is that the posterior communicating arteries, which, when dilated after the occurrence of any pathological obstruction on the cardiac side of the circle of Willis, maintain the circulation in the brain in tolerable integrity, are incapable while normal, by their caliber and position, of adjusting the balance between the direct currents of the carotid and vertebral arteries, and it is certain that the result of the difference in the diameter of these in the two sexes which I have recorded is this: that the anterior region of the brain is comparatively more copiously irrigated

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with blood in men and the posterior region in women. And vascular supply is in some degree a measure of functional activity, the flow of blood to an organ or part having always a relation to its working power. But the region of the brain which in men is most richly flushed with blood is that which is concerned, we have reason to believe, in volition, cognitions, and ideo-motor processes; while the region which in women is most vascular is that which is mainly concerned in sensory functions, and we thus see that there is a relation between the size of the cerebral arteries, and what observation has taught us as to the intellectual and emotional differences of the sexes.

"The structural differences between the male and female brain, which I have briefly referred to, justify the conclusions that they are organs broadly distinguished from each other, and that they have to some extent different kinds of work to do, and an inquiry into the functional relations of each with other viscera of the body, did time permit of it, would strongly confirm this view. All through life the male brain differs from the female in capacities, aptitudes, and powers. Differences early assert themselves. Thackeray has said that little girls make love in the nursery and practice the arts of coquetry on the page boy who brings the coal upstairs; and as for the page boy, it is certain that his pugnacious propensities are already fully developed and have brought him into conflict with his brother buttons. And differences are most patent of all in the prime of life when man "for contemplation and for valor formed," by "his fair large front and eye sublime" declares "absolute rule," and when woman, "grace in her steps, heaven in her eye, in every gesture dignity and love," stands conspicuous for "softness and sweet attractive grace." And differences subsist to the last. The aged spinster, left in "maiden meditation, fancy free," lavishes her altruistic emotions on cat, poodle, or parrot; and the hoary veteran, fidgety and irascible, concentrates his egotistic attention on his own liver. And these differences in brain structure and function, which at every stage of existence separate the sexes, have, as I shall presently show, a special pathological significance at the period when sexual divergence is taking place most rapidly, and when education is being pushed forward with most vigor. Education from first to last can only be safely conducted in the light of cerebral physiology, but unfortunately those charged with the conduct of education too often dispense with that light, or regard it as misleading. It is to point out to you the risks that are run by dispensing with that light at a particularly dark and tortuous part of the educational highway that I am here this evening. I am going to notify for warning and guidance some of the perils of health which seem to me to attend the high-school education of girls, which is now so popular. . . . .

"For obvious reasons it is difficult to get direct and trustworthy evidence about over-pressure in high schools. These schools are naturally disinclined to permit the exposure of blots on their own escutcheons, and individual cases of over-pressure have to be delicately handled. But, thanks to the kindness and magnanimity of the head mistress of one English high school—one, too, in which special precautions against over-pressure were taken—I obtained a few years ago a return which I regard as of great interest, and which throws some light on the matter.

"The facts on which this return is founded were got at by questions, put and answered in writing, the answers sent in by each girl being afterward tested by private cross-examinations by her form-mistress, and in some cases by communications with parents, so that the return is, I believe, absolutely reliable; and it is certainly not a little remarkable to find from it that of 187 girls belonging to the upper and middle classes, well fed and clad and cared for, and ranging from ten to seventeen years of age, as many as 137 complained of headaches, which in sixty-five instances occurred occasionally, in forty-eight frequently, and in twenty-four habitually. Sir Richard Owen once said to me: "Children have no business with headaches at all, and if you find that these occur frequently in any school, you may depend on it there is something wrong there." And so, I take it, there must be something radically wrong in high schools that produce so copious a crop of cephalalgia. That the headaches dealt with in this return were connected with school work is, I think, made probable by the fact that, while in twenty-six cases they are stated to have occurred in the morning, in as many as seventy-six they are set down as of most frequent occurrence in the afternoon and evening, when, as you will notice, according to an immense majority of the girls, the hardest part of the day's work falls on an already jaded brain. And there are other significant facts in this return, besides those relating to head-

Table II—High School for Girls

FORM.	NO. IN FORM.	AVERAGE AGE.	WHICH PART OF YOUR WORK DO YOU FIND HARDEST?	WHEN DO YOU DO YOUR HOME WORK?	DO YOU SUFFER FROM HEADACHES?	HOW OFTEN DO YOUR HEADACHES OCCUR?	AT WHAT PART OF THE DAY DO YOUR HEADACHES OCCUR?	SHORT-SIGHTED.	MUSCULAR TWITCHING.
VI and V.	17	17	Home work........ 15 Class work........ — Equal............. 2	Afternoon............ 4 Evening............. 2 Afternoon and evening. 11	No.... 5 Yes.... 12	Occasionally....... 7 Frequently......... 3 Habitually........ 2	Morning................ 2 Afternoon and evening... 2 No special time.......... 7	3	None.
IV.	25	16	Home work........ 22 Class work........ 1 Equal............. 2	Afternoon............ 5 Evening............. 4 Afternoon and evening. 16	No.... 3 Yes.... 22	Occasionally....... 9 Frequently......... 9 Habitually........ 4	Morning................ 5 Afternoon and evening... 14 No special time.......... 3	7	None.
Upper III.	19	15	Home work........ 16 Class work........ 1 Equal............. 2	Afternoon............ 4 Evening............. 3 Afternoon and evening. 12	No.... 4 Yes.... 15	Occasionally....... 9 Frequently......... 5 Habitually........ 1	Morning................ 5 Afternoon and evening... 10 No special time.......... —	6	None.
Middle III.	26	15	Home work........ 7 Class work........ 3 Equal............. 16	Morning............. 3 Afternoon............ 6 Evening............. 6 Afternoon and evening. 11	No.... 3 Yes.... 22	Occasionally....... 11 Frequently......... 7 Habitually........ 4	Morning................ 7 Afternoon and evening... 12 No special time.......... 3	4	One.
Lower III.	24	14	Home work........ 15 Class work........ — Equal............. 9	Afternoon............ 7 Evening............. 3 Afternoon and evening. 14	No.... 8 Yes.... 16	Occasionally....... 11 Frequently......... 3 Habitually........ 2	Morning................ 3 Afternoon and evening... 11 No special time.......... 3	3	One.
Upper II.	29	13	Home work........ 20 Class work........ — Equal............. 9	Afternoon............ 15 Evening............. 4 Afternoon and evening. 10	No.... 3 Yes.... 26	Occasionally....... 12 Frequently......... 5 Habitually........ 9	Morning................ 1 Afternoon and evening... 11 No special time.......... 3	5	None.
II.	32	12	Home work........ 19 Class work........ 10 Equal............. —	Afternoon............ 19 Evening............. 3 Afternoon and evening. —	No.... 12 Yes.... 17	Occasionally....... 6 Frequently......... 10 Habitually........ 1	Morning................ 4 Afternoon and evening... 10 No special time.......... 3	5	None.
I.	15	10	Preparation in this form is done in the morning. No home work.	Morning............. 15	No.... 8 Yes.... 7	Occasionally....... 6 Frequently......... — Habitually........ 1	Morning................ — Afternoon and evening... 6 No special time.......... —	4	Two.

aches, for you will observe that as many as thirty-seven of the 187 girls were short-sighted, and that four of them exhibited choreic movements. And this return represents no exceptional state of things. Inquiries made quite lately satisfy me that a very large proportion of high-school girls still suffer from headache, that neuralgia is common among them, and that they display multifarious indications of nervous exhaustion. It is no infrequent occurrence, I am told, for the more delicate girls, who return after the holidays looking tolerably well, to break down in the middle of the term, to be absent from school for a few days or weeks, to return and struggle on with their work, but finally to shirk the examination at the close of the term. But if we had no evidence of suffering or disability immediately resulting from high-school training, as it is now carried on, we, as medical men, should not hesitate to pronounce that training in some respects pernicious, from a consideration of its character alone. Two-thirds of high-school girls will attest that the hardest part of their work—preparation, which involves the opening of new ground, an advance on what has been already learnt, and effort in surmounting obstacles—has to be performed in the evening, when they are already worn out, at the very time when in the cycle of daily life their brains are least capable of exertion. And no inconsiderable number of high-school girls will attest that this arduous work of preparation is often carried on until ten, sometimes even eleven o'clock at night. Within the last month I came upon two girls attending a London high school, bright, clever, ambitious girls of fifteen, high in their classes and determined to hold their places, who admitted that, in spite of all restrictions, they were working up till ten o'clock two or three nights a week, and in one of them I could discern, in stunted growth, round shoulders, and intense nervous susceptibility, the effects of this ill-timed diligence in study. A friend of mine in the north of England tells me that he has recently removed his two daughters from a high school and placed them under private tuition, because he found that they were regularly working up till ten o'clock at night. . . . .

"The evils resulting from over-pressure in high schools for girls—whether that over-pressure be due to home work, or competition, or examination strain—are brought about through its influence on the cells of the brain, and it is not difficult to understand how these cells are affected. It is unquestionably true of all cells, that when they are in any way stimulated in excess of their powers of taking up nutriment, or deprived of an adequate supply of nutriment, they utilize as food material their own protoplasm, and so induce disordered metabolic processes with subsequent degeneration. In pyrexia, in the presence of which metabolic activity is always increased, we find that the protoplasm of the muscular fibers of the heart and of the cells of the liver passes through a stage of cloudy swelling, indicative of increased activity, which merges ultimately into fatty degeneration. And when to the stimulating influence of pyrexia is added that of toxic materials circulating in the blood, as during typhoid fever or diphtheria, we find that degenerative changes are not confined to the excretory glands and heart, but invade the nerves and muscles generally. Well, it appears to me that the fever of the mind which over-pressure sets up is capable of influencing cell protoplasm in much the same way as ordinary pyrexia. Its effects have not yet been traced out with the same precision. No doubt they differ in degree and distribution, but they are probably much the same in kind. When the cells of the brain are stimulated in excess of their powers of taking up nutriment, as they are during forced mental labor, or when suitable supplies of nutriment are cut off from them, as may be the case during the impairment of digestion which forced mental labor not rarely entails, then the metabolism in these cells is, we may infer, altered, and they degenerate and secondarily induce wide-spread degenerative changes throughout the system. The group of symptoms which is characteristic of the mental failure which follows upon severe over-pressure, and which may be summed up as acute or apathetic dementia, is almost identical with that seen in cases in which mental failure has followed upon acute specific diseases, and in mental failure of the former kind, not less than in the latter, we have also sometimes dilatation of the heart and changes in the liver, kidneys, and voluntary muscles; and in both kinds of mental failure, recovery takes place if the fatty degeneration has not so far advanced that the active protoplasm of the cells is absorbed, whenever the cells, which have had extra work thrown upon them, are allowed absolute rest, and are placed in favorable conditions as regards nutrition.

"I have referred to acute, or apathetic dementia, as the most characteristic of the pronounced mental changes which severe and continued over-pressure acting on a neurotic subject may induce, and the slight mental changes which are similarly induced are most generally akin to it, and are but the buds of the symptoms which it presents full blown. Thus it is no uncommon event to hear overworked high-school girls complain that their power of acquisition and attention is impaired, that they take far longer to their work than they used to do, that they cannot remember what they have learnt, that they read their lessons without understanding them, that they sometimes lose themselves and forget where they are, and that what they call 'queer thoughts' keep coming into their minds, while the observation of these girls at the same time reveals that they are languid and irresolute, or unusually irritable. Such slight departures from normal mental states, for the most part, go no further, but are rectified by the holidays; but now and again they advance into that mild coma which corresponds with apathetic dementia. But, besides apathetic dementia, there are, of course, many other mental aberrations to which over-pressure may lead up, the nature of these in each case being determined by the inherited tendencies, antecedents, or environment of the girl. We may have cyclones of mania, or anti-cyclones of melancholia, hurricanes of morbid impulses, or the settled bad weather of moral perversion. And as regards certain minor mental changes which thus arise, it is noteworthy that they are often concealed by girls who do not comprehend and can scarcely describe them. This is particularly the case with reference to those voluminous mental states described by Dr. Hughlings Jackson, which are sometimes the harbingers of epilepsy.

"I cannot pretend to classify or describe the vagaries of nervous disturbance that present themselves to medical observation in girls in these days, and in the production of which over-pressure plays some part, but I would name insomnia of the commonest occurrence often of evil import, sopor or sleep so deep and difficult to break as to be almost cataleptic in nature, neuralgia, chorea and hysteria. And, besides nervous disturbances, there are many ailments and diseases begotten or fostered by over-pressure which medical men are familiar with in high-school girls in these days. Chief of these are anæmia and general delicacy. Women suffer from anæmia in far larger proportion than men. In the ten years, 1881 to 1890, the deaths from anæmia, chlorosis and leucocythæmia in England and Wales were 32.29 per 1,000,000 among men, and 54.83 among women. And, as is well known, chlorosis and anæmia show themselves in girls from ten to twenty years of age more frequently than at any other period of life, and may be induced by mental worry or excitement, which causes a diminished production of blood corpuscles. In his very able investigation into the physical and mental condition of school children, Dr. Francis Warner has satisfied himself that mental stimulus applied to children 'does lower their general nutrition.' He found that pale and delicate-looking children are proportionately more numerous in schools attended by children of an upper social class and presumably well fed, than in schools attended by children of the poorer class, presumably not well fed; and the only explanation of this he has to offer is that better-class children are subject to more mental stress than children of a poorer class. A single glance at some high schools, and the complexions of the girls assembled in them, convinces that they are deficient in red corpuscles, however rich they may be in blue stockings.

"The anæmia encountered in high-school girls is sometimes due to the direct action of mental tension on the blood-forming apparatus; but it is sometimes due also to the action of that tension on the digestive functions. Large numbers of high-school girls suffer from loss of appetite; a certain number go to school without breakfast. Worn out, they oversleep themselves, and leave scant time for the morning meal; or, after a night of broken rest, they rise unrefreshed, swallow a cup of tea, the neurotic properties of which they have already discovered, but decline solid food, or merely trifle with it. They labor under a gastric disorder now so common that it might receive a distinctive appellation, and be called *anorexia scholastica*, in which the lessened flow of energy from the exhausted nerve centers retards the functions of all the abdominal viscera.

. . . .

"The study of the effects of over-pressure, immediate and remote, on the monthly rhythm, and on the fitness and capacity of the woman to reproduce the species and to bear healthy children—health implying both bodily and mental vigor—must be kept for separate examination at some other time. So also must the study of the effects of secondary over-pressure, as applied, in colleges and halls, to young women at from eighteen to twenty-four years of age. Admirable culture is supplied in these colleges and halls; but they, too, have their risks, notwithstanding that their pupils are all picked lives. The suicide of a pupil, who had just undergone examination at one of them, was reported two months ago. I must, however, even now express my belief that the University of St. Andrews, in deciding, as it has lately done, to open all its classes in arts, science, and theology to women as well as men, has taken not a retrograde step—for our ancestors never did anything so foolish—but a downhill step toward confusion and disaster.

"Its now empty benches may be thronged with pupils, its professors may fatten for a time on duplex fees; but the attempt to educate young men and women, not only on the same lines but in the same coaches, cannot but prove injurious to both. 'What has been decided among the prehistoric protozoa cannot,' it has been well said, 'be annulled by act of Parliament,' and the essential difference between male and female cannot be obliterated at a stroke of the pen by any Senatus Academicus. To essay such work is to fly in the face of evolution. Among unicellular organisms the conjugating cells are exactly alike, and do exactly the same work in the world; but among multicellular organisms they are dimorphic, and from that point upward differentiation in structure and function goes on. With occasional aberrant variation the sexes diverge from each other, not merely in primary and secondary sexual characteristics, but in functions, not directly associated with sex, as we ascend in the animal kingdom, and it is in the human species that sexual distinctions, bodily and mental, are most marked.

"And with this divergent differentiation of the sexes has come reciprocal dependence and higher harmony. It is no question of superiority or inferiority of the one sex to the other. Each sex is higher; each is lower; together they make up the perfect whole. Separate, they are infirm; in union, they are strong; in competition, they are mutually destructive. It is in the sympathetic accord of the differentiated sexes that human progress can alone be hoped for.

"He is a half-part of a blessed man,
Left to be finished by such a she,
And she a fair divided excellence
Whose fullness of perfection lies in him.

"And blindness to this complementary relation of the sexes, so patent to Shakspere, it is that leads wise men—wise but ignorant, or contemptuous of biology—to sanction intersexual competition in education and for subsistence with its ruinous effects. Men and women are constitutionally adapted to do different work in the world. To set them to do the same work is wasteful, and detrimental to the sex that is less adapted to it. It is impossible to contemplate with complacency some of the experiments in this direction which are being carried out, and it is impossible to speculate, from a medical point of view, without apprehension what the outcome of such experiments may be, or what high school, and college, and hall education may do for the country in a few generations, if they be pushed on with relentless zeal."

VII

DISCUSSIONS

LARGE SCHOOL BOARDS OR SMALL?

The school board is one of the unsolved problems of municipal administration in the United States. Shall the board be large or small? Shall it be appointed or elected? Shall it be absolute, or under the control of the common council? Shall each member represent the entire municipality, or merely the ward or section in which he lives? There is scarcely a conceivable scheme with regard to boards of education that may not be found in operation somewhere in the United States. In general, the discussion centers about this question: Is it better to have large boards, whose members represent each a small section, or small boards, whose members each represent the entire city? In short, it is claimed that the interference of petty politics is necessary to the management of schools in the American city. Is this so? The best indication of the truth is the accumulated experience of cities having boards of different kinds, appointed in different ways. As a contribution to this discussion, the following experience of the city of St. Paul is given.

The plan of appointment of the St. Paul board was given in detail in the EDUCATIONAL REVIEW for February last. In brief, it is this: The board consists of seven men, appointed by the mayor, for a term of three years each, who represent the city at large. The first board under the new law came into office May 15, 1891; hence they have continued in office now for something more than one year. Experience thus far completely vindicates the wisdom of those who framed the law.

The number of members being considerably smaller than that of the wards in the city, it was impossible to have all localities recognized, and the mayor broke over all party lines and appointed men as follows: Two bank presidents, men of high standing in the business community; two college presidents, two editors, and a physician. Later one of the editors resigned, and in his place was appointed a prominent independent minister.

This board has taken hold of the work of the schools with a degree of vigor and wisdom never before known in the history of the city. Although the enrollment has increased about one thousand during the year, the expenses have been largely reduced, and this without any loss, but rather with great gain in efficiency. This can best be shown, perhaps, by a brief statement of the work accomplished in one year.

The course of study has been enriched in the following ways: General history has been introduced into the fourth grade, accompanied and followed by United States history through the seventh grade, after which, in the eighth grade, its place is taken by English history. Elementary science has been introduced into all grades in connection with work in the various arts of expression, drawing, writing, and manual training. The non-essential portions of arithmetic have been removed, and an elementary course in higher mathematics has been substituted. This does not go into full operation until the next school year.

Manual training, consisting of shop work and drawing in connection, has been introduced into the sixth, seventh, and eighth grades of the grammar schools and has been adopted for introduction the next school year into the fourth and fifth grades. The manual-training school, with an elementary course of three years, has been advanced and made a part of the high school with a full four-years' course. Sewing, which had been pursued in the schools, but which had been removed by the old board, has been restored, and is now taught in all grades from the fourth to the eighth inclusive. Cooking has been taught this year as an optional study in the high school, and has been adopted for the seventh and eighth grades of the grammar schools for the next school year.

The board last fall established a single kindergarten in one of the public schools, not as an experiment, but as an object lesson to the people, and has now decided to introduce kindergartens for the next school year into all schools having a sufficient number of children of suitable age.

A plan has been formulated and partially carried into effect for relieving the teachers from the anxiety of annual elections. A night high school has been conducted by the teachers of the day high school, and has been attended by nearly eight hundred students, mostly adults and many of them teachers. An immense amount of work has been done for and by the teachers in preparation for the newer and higher duties. Confidence and enthusiasm have been restored.

An old act, compelling attendance upon the public schools, which had lain dormant upon the statute books for several years, has been revived and enforced as fully as it will admit. Certain changes in this law have been found necessary to make it effective, and these will be asked of the next Legislature.

All this has been accomplished without friction, and, practically, without opposition, not merely on paper, but in the work of the schools, by a body of men intelligent and self-sacrificing, with no axes to grind, whose sole purpose it has been to improve the schools of the city.

The writer is disposed to question whether, under any other of the various methods of appointing school boards, the same results could have been secured. In the previous experience of St. Paul, one great foe to the success of the schools has been the local interests represented by the members from the different wards, causing either antagonism or trading. The great fault of large boards is lack of unity and the possibility of demagoguery. Of course, a small board, composed of bad men united in one evil purpose, can accomplish it readily; but such a thing is rare, and the smaller the board, the easier it is to hold its members responsible for their acts.

Certainly, in St. Paul, no board of education ever stood so high in public estimation, and it is doubtful whether votes enough to be counted could be secured for a proposition to go back to the old method of ward representation. Certainly not, if those specially interested in the schools were the voters. No board was ever freer from cranks, and no board ever supported its superintendent and teachers more fully.

Of course, this is the experience of but one city. It may be said that its success is due to the exceptional character of the men composing the board. Doubtless this is true, but it is claimed in St. Paul that under no other system would it be possible for such exceptional men to be appointed to the board.

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THE OLD AND NEW METHODS IN GEOMETRY

The hypothetical constructions of geometry have often been objected to as illogical. In the January (1892) number of this REVIEW Professor Richards of Yale again called attention to their absurdity, but it seems worth while to point out more at length just what the absurdity is. Geometry assumes (in the definitions) that the figures defined have an existence, and (in the general axioms) that certain mathematical relations are true and obvious. If now it starts on its legitimate work of proving certain relations in these figures it meets a difficulty, viz., the relations to be proved are not always obvious, simpler relations are desirable, and a more elaborate figure with auxiliary parts is sought.

Euclid apparently examined the subject somewhat carefully and placed among his assumptions three postulates or "demands": (1) A straight line may be drawn between any two points. (2) A straight line may be prolonged indefinitely. (3) A circle may be drawn with any point for center and with the circumference at any distance from the center. He also assumed two or three geometrical axioms. With these assumptions he deduced the "six books." Not a line is drawn, not a statement is made, that is not justified by an earlier statement. The first proposition (a problem) rests on postulates for the construction and on axioms and definitions for the proof. The second proposition (a problem) rests on Prop. I, and postulates for construction, and on axioms and definitions for proof—and so on. As another example, Prop. XII is: *To draw perpendicular to a given straight line from a given point without it.* The construction rests on two postulates and Prop. X, the proof on two constructions (postulates), two definitions, and Prop. VIII. Now the advocates of ancient geometry claim that logic demands some such method as this: that at whatever point we open the book a chain of influences shall lead us back to the first assumptions. Euclid aimed to make his postulates few and simple; that is not essential for logic, but it is probably desirable for other reasons.

Now for the modern. He makes substantially the same beginning that Euclid does—definitions, axioms, and postulates for straight line and circle. And when he needs a more elaborate figure he draws any line that suits his convenience. The postulates stated with a show of vigor in the early pages of our popular text-books are held to in the propositions no more than if the author had never heard of them.

Angles are bisected, parallels and perpendiculars are drawn, without a hint of justification. Sometimes it is proved that there can *be* a perpendicular, and only one, at a given point on a given line; but we still have no support for drawing one, for the only straight line provided for is to be drawn from point to point. There may *be* an angle of $51\frac{3}{7}°$; but if any geometer could, on the basis of Euclidian postulates, *draw* one he would revolutionize geometry, for he could then inscribe a regular heptagon in a circle. The case is simply this: The postulates are entirely disregarded in proving the propositions for about two books, and straight lines and angles are drawn at the pleasure of the demonstrator. Then the problems are introduced, constructed by means of the postulates, and proved by the earlier propositions. This leaves the early proposition, and consequently the later ones, as unsupported as ever. Mr. Shutts (EDUCATIONAL REVIEW for March, 1892) says: "The pupil is told—to make a drawing that shall simply *represent* to the eye—the relations desired to be considered." The word "figure" has already been defined in the books, and it must be remembered that any *diagram* only represents the figure. The postulates, if they are good for anything, should justify the figure. With or without a diagram the pupil can support the construction, "Draw a straight line from A to B," by the postulate, "A straight line may be drawn between any two points"; but he cannot support the construction, "Bisect the angle A," by anything,—he cannot *draw* in a geometrical sense the bisector at all. He may prove there is one; so may he prove there is a trisector. He may represent to his eye either line, bisector, or trisector, but *the thing represented*, the "line" of his definitions, cannot be "drawn": no postulate supports it.

It may be said that at any rate the logic may be saved by justifying the constructions in one sweeping postulate: Any conceivable straight line, or circle, may be drawn. Allowing the logic, there must then be considered the wisdom of this method. It must be remembered that nothing is gained in geometrical results. Euclid and his method leads us to the most recent geometry. It is not to the school of the "improvers" that we must go for the freshest discoveries regarding points and lines in triangles and circles. And if we gain nothing in these fields we lose in others. "Among the Greeks, the power of speculation remained active during their whole existence as a nation, even down to the taking of Constantinople: it declined, indeed, but it was never extinguished. Their latest knowledge was inquisition, as well as their earliest. They preserved their great writers unabridged and unaltered, and EUCLID did not degenerate into what are called *practical rules*. . . . Greek geometry, as all who have read EUCLID may guess, gained its strength by *striving against self-imposed difficulties*. It was not permitted to take instruments from every conception which the human mind could form; definite limitation of means was imposed as a condition of thought, and it was sternly required that every feat of progress should be achieved by those means, and no more. . . . [This is] the mode of thought under which science made its greatest advances in Greece." [1]

And it is this mode, this method of self restraint and scrupulous logic, which hypothetical constructions abandon.

It is safer, perhaps, to anticipate and remove one or two possible misconceptions. In the first place, it is not Euclid's "Elements," but it is his method which the advocates of ancient geometry wish to see in use. Likely there are details in the "Elements" which can be improved, and no doubt we need propositions in solid geometry that Euclid does not give at all. The complaint against the modern text-books is not wholesale. These books are prepared, generally, by able men and skillful teachers, men who know their public, and who know that a book greatly different from the ones in present use would probably get but scanty attention. Besides, much good mathematical work may be done with an imperfect instrument. The pupils get an impression of mathematical vigor from the subject, even if flaws in logic are detected. Some teachers even enjoy the mistakes in a book, and think good may come from such evils. Finally, the fault here complained of should not be laid entirely to geometry teachers and bookmakers. Obviously if our colleges consistently demanded Euclid, or anything else, the preparatory schools would try to meet the demand.

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[1] De Morgan, quoted in the *Mathematical Monthly*, vol. ii, pp. 67 and 69.

VIII

REVIEWS

A Text-Book in Psychology.—An attempt to found the science of Psychology on Experience, Metaphysics, and Mathematics. By JOHANN FRIEDRICH HERBART. Translated from the Original German by MARGARET K. SMITH, Teacher in the State Normal School at Oswego, N. Y. International Education Series, edited by Dr. W. T. HARRIS. New York: D. Appleton & Co., 1891. pp. xlv, 200. Price $1.25.

Herbart's *Lehrbuch zur Psychologie*, of which the present book is a translation, appeared first in 1816, and, in revised edition, in 1834. The work is, on the whole, so dependent upon the author's metaphysical presuppositions, and upon the considerations which he developed at length in his *Psychologie als Wissenschaft* (2 vols., 1824; vols. v and vi of the collected *Werke*, ed. Hartenstein), that, as it lies before me, the present text can hardly be of much service to students whose only acquaintance with Herbart is to be derived from its pages. The translator herself is not unaware of the limitations of her task. "The design," she says in her introduction, "of the present translation is not so much to furnish information as to awaken an interest which may develop a desire for a clearer insight into principles that seem to form the best foundation that has yet been discovered for a rational system of scientific pedagogy." This very modest confession suggests here only the comment that, if it is not good pedagogy to try to convey information without awakening an interest, it is perhaps a little hopeless to seek to awaken interest in such matters without conveying a good deal of information. And unfortunately Herbart did not make access to his principles easy by this, his smaller psychology.

It may be well, then, to remind ourselves, as we begin, of Herbart's actual significance in the history of thought, and in particular in the history of psychology. Herbart, as pupil of Fichte, and as teacher of philosophy during the age of post-Kantian idealism, represents in his own person a form of reaction against the deeply paradoxical fashion of thinking then prevalent in philosophy. The principal theme of the age in

German thought which lies between 1781, when Kant's *Critique* appeared, and the close of the idealistic period, was the nature and the implications of self-consciousness. "Who am I?" was the central problem of metaphysics. The inner life was the one great theme of poetry. Fichte's Ego and Goethe's *Faust* are alike characteristic products of the time. The Romantic School and the Hegelian logic embody in different ways the same conflicts and reflections. But the metaphysic of self-consciousness proved to be no clear or simple thing. The definition of the true self, long pursued, evaded as persistently all efforts at a sharp formulation and description of its content. What one found were rather the ceaselessly renewed paradoxes of self-consciousness, and so it was that this became an age of paradoxes. Now, such an age is easily metaphysical, ethical, and poetical in its undertakings. But it is too much absorbed in its problems to study their natural history. It furnishes endless materials for the psychologist, but it does not love psychology. It exhorts men to the higher life, but it does not favor a scientific study of the phenomena of life. Its reflection is fond of the problematic; and it is proud of baffling common sense and of confusing the Philistines with its wonders of high contemplative insight. But the dry light of descriptive science it generally shuns. It makes grand constructive syntheses, but the more searching analyses of the psychologist are fruitless for its ends. It is devoted to the "spiritual ties." It, therefore, fears to find merely the dead "parts" in its hands. Hence the indifference to analysis, and to the empirical study of natural history.

Now into such an age Herbart comes as an enemy. At the university, as pupil of Fichte, as critic of the early essays of the young Schelling, he already revolts against the great philosophical principle called *das Ich*. Thenceforth, as he himself tells us, he steers against wind and tide. Self-consciousness, he insists, is something that cannot be understood by itself, and that cannot be made a principle of philosophy. The very idea of a self involves, so thinks Herbart, essential self-contradictions. And Herbart is no lover of contradictions. From this time on he is a declared foe of the philosophical methods current in the thought of his time. He hates the paradoxes of self-consciousness, just in so far as they are made anything but objects of destructive criticism for philosophy. What these paradoxes need is not to be glorified, but to be psychologically explained. It is their natural history, not their supposed world-embracing significance that the philosopher is to consider. Philosophy is founded on the clear explication of the contradictions latent in our natural and untrained human thought, and on the effort to remove these contradictions by a plain account of what the consistent truth of things must be, so far as this truth is accessible. Philosophy must not tolerate contradictions, nor dally with them, as the current idealism did. Philosophy must do away with them, by explaining their origin. Such an explanation will be furnished by a science of psychology, which Herbart accordingly feels called upon to found. For what exists ready to his hand in this field, he finds very inadequate.

Such is a suggestion of Herbart's position as a philosophical thinker. He is acute enough to recognize, with his fellows and opponents, many of the deeper problems and paradoxes of the natural consciousness of man. Only whenever the idealists saw such paradoxes, they at once looked in this direction for a new revelation of profound mysteries; but whenever Herbart lighted upon such, he regarded them as illusions, to be explained as results of the natural laws of mental life. Accordingly Herbart, as psychologist, is exceedingly suspicious of the immediate testimony of consciousness. He seems to himself to live in an age of splendid spiritual illusions, and he disbelieves all appearances when he himself looks within. Experience, must, indeed, be the first guide everywhere; but for the psychologist experience needs a sort of critical reformation. The inner life isn't what it seems to be. Hypotheses are needed to comprehend it. Of these hypotheses metaphysics furnishes Herbart what he regards as the deepest in the theory of the soul as *einfaches Wesen*, whose *Selbsterhaltungen*, or self-preservations, form its simple *Vorstellungen*, or ideas. These are the stuff of which mental life is made. Their relations are those of agreement, of opposition, or of disparity; and out of these relations, and out of the vast mass of simple *Vorstellungen* which the soul gets in the presence of other *Wesen* (*i. e.*, of the other "simple beings," with which it stands in what Herbart calls a *Zusammenstellung*)—out of all these ideas and relations our consciousness is built. Our understanding, our reason, our will, our ideals, our countless illusions of the inner life, including that vast illusion of Fichte and of the idealists called *das Ich*—all these things, thinks

Herbart, are the product of the massing of our *Vorstellungen*; are due to their repulsions, to their attractions, and to the movements upward from and down toward, or below the "threshold of consciousness, on the part" of groups of these simple ideas. All these relations and movements, moreover, are determined by mathematical laws. Herbart fancies himself (and this is the purest and most arbitrary of fancies) in possession of such fundamental mathematical laws of the relations of the *Vorstellungen*. An almost pathetic industry, founded upon a few wholly indemonstrable assumptions, gives us, in the larger psychology, nearly one half-volume of the mathematically formulated mechanics of the inner life. To the vaguer spiritual dreamings of the romantic period, Herbart thus opposes an equally airy edifice of algebraic formulæ, of which the advancing science of the natural history of mind has since been able to make only the very smallest use. Herbart has the credit in this direction of having stimulated research. But he has, indeed, as mathematical psychologist, done little more.

The theoretical work of such a man is useful for two classes of students. The first are those concerned with the history of psychology. For them Herbart remains a great master of his art, at an early period of its modern history. As such they need to refer to him frequently. They will probably not need a translation. The second class consists of the general students of psychology, who want guidance as to specific problems, such as are the practical problems of teachers. Such will turn at first with a certain eagerness to the present translation. Dr. Harris's introduction, in many respects wholly admirable, but, in respect to what is said about Herbart's views of "Apperception," rather too attractive and promising, may lead some such readers to regard Herbart too much as if he were a guide whose present authority were at all comparable with his historical dignity. One fears that the hopes thus aroused will ere long be disappointed. Herbart, as said above, here makes the entrance to his own doctrine as hard as possible; puts his most difficult technicalities first, and will for many such readers seem to have but made darkness visible.

It is at this point that comparatively untechnical readers of our second class—in case, despite all, they preserve their resolution—will find themselves especially dependent on the translator's tact to help them over their first perplexities. And where a translator has labored with such obvious care and devotion as Miss Smith has done, it seems a pity to point out defects. Yet there are some pretty serious misjudgments, as well as out-and-out errors in this translation; and the misjudgment which comes first to hand must cause a good deal of perplexity to innocent readers. Our translator chooses, namely, "concept" as the usual translation for Herbart's best-known technical term, *Vorstellung*. She explains her own use of *concept* on p. xxii of the introduction, but not in such wise as to make entirely clear what Herbart really meant. In view of the long since classic use of the word "idea" by Locke and his successors in psychology, there can be no doubt that, unfortunate as is the ambiguity of this term in its technically metaphysical associations, the word *idea*, as the English psychologists since Locke have employed it, is the one word worthy to render Herbart's *Vorstellung*. All the customary connotations of *concept*, however, are of a very different sort indeed, and the reader may well complain of a choice which must make his Herbart so much harder to him as he toils through this translation. What shall one make of such a statement as that "we shall not think of complex or of compound concepts . . . but of entirely simple concepts or sensations?" One ignorant of Herbart, but somewhat accustomed to the ordinary use of the English word "concept," will at first naturally begin to wonder into what company he has got himself.

For the rest, our translator, subject to the unhappy destiny which so often pursues those devoted to her art, sometimes falls a prey to more than mere misjudgments. In Section 16, note (translation, p. 13), Herbart defends his own use of the word *Bewusstsein* (*i. e.*, consciousness), in so far as he does not limit the application of the latter term to cases accompanied with *innere Wahrnehmung*, or "self-conscious" awareness. He says, accordingly: "Man wird sich hier einen erweiterten Sprachgebrauch müssen gefallen lassen." The translation reads: "Here we are obliged to be content with a *circumlocution!*" On p. 14, *dahin* is translated *thence*. The technical term *Hemmungssumme* causes the translator trouble. On p. 13 she renders it "arrested portion," on p. 16, "amount of suppression." Surely so definite and characteristic a term needs a fixed rendering into English. On p. 58 one reads: "Less distinct, but nevertheless indispensable, is the series produced by the putting together of sensations of the same kind." Herbart's text runs: "Minder deutlich, aber dennoch *unvermeidlich wird die Reihenform producirt bei der Zusammenstellung*, etc. Immediately below, on the same page, a passage, reasonably clear in Herbart's text, and bearing on the theory of the color sense, has been rendered almost unintelligible by an unnecessary transposition. On p. 60 one reads the somewhat puzzling statement that probably "the geometrical concept of space . . . is a result of a process of producing or drawing out that has gradually become stationary." Herbart said in just this place nothing so odd, but only made the innocent-seeming suggestion, "dass auch die geometrische Vorstellung des Raums . . . nur eine allmählig zu Stande gekommene Produktion sei" (*i. e.*, is no innate idea, but is an outgrowth of the series-building processes which he has just been describing). Of such more or less serious inaccuracies, a number of other examples have come under the present reviewer's notice, some of them matters of a single word or phrase (such as *most rarely*, on p. 160, for Herbart's *am seltsamsten*), others of considerable importance.

In sum, one must say, that while this translation generally seems to be successful, and is occasionally a remarkably smooth rendering of very dry portions of Herbart's most technical arguments, it is not free from occasional blemishes of a very inconvenient sort, and ought to have been more carefully revised.

But to return to the needs of our general reader: If he still seeks in this book for what will be of most service, let him at once aim at those chapters and passages which show Herbart as a keen empirical analyst of the natural history of complex inner processes. Let our general reader expect little or no positive help from the system as a whole. Let him dwell most upon part second, "Empirical Psychology," with its important negative criticism of the doctrine of the "Faculties." In part third let him read with especial care the chapters on the development of self-consciousness, and on self-control. Let him follow Dr. Harris's hints, as given in the introduction, concerning the study of "Apperception." But above all, let him not suppose that "Apperception," or any other such convenient bit of the Herbartian terminology, is henceforth going to be a word to conjure with, or that, in the great world of modern pyschological research, Herbart's principles, as he left them, can still be said to form, in any sufficient sense, a modern foundation "for a rational system of scientific pedagogy." Herbart may plant (as he did), and many others may water (as they have done); but only the common labor of generations of investigators can, in this field, give the true increase. There is no royal road to a "rational system of scientific pedagogy"; not even through the golden gates of "Apperception."

JOSIAH ROYCE

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Psychologie der Suggestion.—Von Dr. phil. HANS SCHMIDKUNZ, Privat docent an der Universität München; mit ärtzlich-psychologischen Ergänzungen von Dr. phil. et med. FRANZ CARL GERSTER, Practischer Arzt in München. Stuttgart: Ferdinand Enke, 1892. pp. xii, 425.

This latest contribution to the amazingly productive department of hypnotic research differs in purpose and treatment from its many fellows. The usual manual of hypnotism, such as that of Moll, recently translated in the Contemporary Science series, accomplishes its object when it gives an orderly exposition of the facts, the processes, the extent, the applications, the history, and the explanation of the chief hpynotic phenomena; the present volume selects for special treatment the kernel of the entire body of facts, the illuminating central core of the subject—the significant doctrine of suggestion—and aims to portray the place and bearings of this truth in the general science of psychology. The process of suggestion is universal, and stands for nothing less than the sum total of the means by which our actions are influenced; by circumstances, by thoughts, by things, by words, by training, by heredity, by our fellow-men, by our environment. When we subtract that small portion of our conduct that follows from our reasoned acquisitions, and which is based upon a thoroughly logical sequence of thoughts and deeds, what remains is more or less the result of suggestion. Suggestibility is thus the normal condition of everyone, and the myriad shapes it assumes depend upon the degree and the direction of our susceptibility.

When the sight of food makes our mouths water, when we take out our watch when a neighbor looks to see what time it is, we obey the suggestion of an act or thing—a real suggestion. When we acquiesce in a popular belief that we hear talked about, or lose our appetites at the recital of an unpleasant tale, we are under the influence of a verbal suggestion. When we unhesitatingly follow in the leadership of some strong intellect we are at the mercy of a personal suggestion. There are many other points of view from which to regard and subdivide classes of suggestion, but the principal factors are the directness, the degree of intention, and the power of resistance accompanying the process. When the mere presence of the physician relieves the patient, when we hold our breath while gazing at the trapeze performer, when we appreciate a picture on finding the name of a famous artist upon it, or enjoy a bad cigar in a fine wrapper, we are influenced by indirect suggestions, while in the last instance the suggestive step is intentionally devised. When we ask leading questions in order to induce a favorable answer, and find ourselves blushing when someone asks "why do you blush," we are under the influence of intentional verbal suggestions. We can even be our own "suggestors" and decide to hear an aria in the rumbling of a train, ignore a slight ailment when we know we must be in good spirits for the evening, make ourselves shudder by thinking of high and dangerous places—and is not the process by which we put ourselves to sleep an auto-suggestion? A pedagogical illustration may also be added. "By sternly staring at his pupil, by assuring him of his ignorance and the like, a teacher may frighten off what is perfectly familiar, just as in hypnotism we succeed in suggesting the inability to write one's name."

Hypnotism presents a state of exaggerated suggestibility and is by no means the only condition of excessive suggestibility. We all have moods in which we yield easily to surrounding influences and suggested impulses; in sleep we pass through such a state, and the action of drugs upon the nervous system holds out other means of its production. Comprehensive exposition of these analogues in normal life to the phenomena characteristic of the hypnotic state, is one of the main theses of this work; both states represent in different ways the varied and significant parts that suggestion plays in mental action. This, then, is the psychology of suggestion, and while it does not altogether substitute explanation for description, it none the less rationalizes our conceptions of the subject, and removes the *bizarrerie* of hypnotic phenomena in so far as it assimilates them to the better understood occurrences of normal life.

The wide-reaching applications of the doctrine of suggestion are obvious. The large share it plays in the treatment of disease—psycho-therapeutics—is the subject of many special treatises; the complications its possibilities introduce into legal procedure, make more difficult the perplexing problem of placing responsibility; and its application to practical ethics and education have been more than hinted at. Historically, too, it sheds light on many discredited or perversely described events, and adds significance to the study of anthropology and religions.

Dr. Schmidkunz has ably sumed up this vast field, and strongly presents his main theses; he has embellished his exposition with many apt illustrations and copious notes. The style is good, though, for the last half of the volume, unnecessarily prolix. The work may be recommended as a successful essay, giving this important doctrine of suggestion the place it deserves in a scientific psychology.

JOSEPH JASTROW.

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A Grammar of the Homeric Dialect.—By D. B. MONRO, M. A., Provost of Oriel College, Oxford. Second Edition, Revised and Enlarged. New York: Macmillan & Co., 1891, pp. xxiv, 436. Price, $3.50.

To those who are familiar with Simcox's *Demosthenes* and Riddell's *Plato*, this book, which is of the same size and type, will need no further commendation. Its author is well known in America as a leading Homeric scholar, partly through his excellent article on Homer in the Britannica, partly through his annotated Iliad, and partly through an earlier edition of the book now under review. If it be true that the scholarly productions of the English universities are small and scarce compared with those of Germany, it must however be conceded that the fruit is usually sound and wholesome. The scholars of Oxford and Cambridge may not be as fearless or as patient in research as those of the German universities, but they have this virtue, they always keep on this side of the stars and in touch with common sense.

This new edition contains some fifty or sixty pages more than its predecessor. The method throughout is substantially the same. The book might well be called a very perfect herbarium of Homeric specimens. The treatment is natural, consistent, thorough. Starting with the predicative part of the sentence which is contained in the verb-stem, the author shows that to be the root from which all else in the sentence grows; it is the "storm-center," so to speak, that determines or is determined by everything else in the sentence. Strengthened or weakened by internal vowel changes, this root of predication calls in the personal endings as its agents; it is determined in its time or mode of predication by prefixes or suffixes; its activities come from or pass forth upon the noun which would be impotent or useless without it; and consequently, of course, upon the pronoun which is doubly dependent; until at length we have naturally passed over to the consideration of subordinate clauses and their moods. We have meanwhile been called upon to consider the infinitive and participle as really verbal nouns, have been introduced to the preposition, to help in fixing more definitely local relations, and the discussion closes with chapters on the particles and on meters.

The remarkably painstaking research here exhibited must be the despair of men who are not friends to hard work. Thousands of passages are cited from the Iliad and the Odyssey to illustrate the points under discussion. One example is seldom sufficient. Not infrequently they stand in wind-rows. These citations, with their excellent renderings, reveal a wealth of thought and expression to which the mere class-room student of Homer is an entire stranger. A new meaning shines out of some voice or tense; the cases have a larger application; the article or pronoun becomes a bridge by which we pass over, after a new fashion, from the principal to the subordinate members of the sentence; we are made to see what wonderful power of light and shade rests in the particles; but lastly—and that is a point where English scholars, as compared with American, are particularly strong—we see a large, generous way of rendering into the English, which shows a mind no longer under grammatical bondage or tied down to fussiness of class-room habit. Up to date all American editors of annotated classics might profit by such examples.

If anyone doubts either the originality or soundness of this scholarship, let him, after reading the prefaces, turn to such discussions as that on "Contract Forms," beginning on page 51. It is a sample. Or let him follow the author in the varied shades of meaning that are possible—say in the genitive and dative. Or, for a change, let him take up the treatment of the subjunctive and optative. He will see many of his accustomed renderings made absurd. But he will seldom doubt the excellence or superiority of the renderings given here.

Yet perhaps even such a book as this may be criticised here and there. The chapters follow too closely upon each other. No chapter should have begun on the page where its predecessor ends. It seems as if the chapter on Prepositions interferes with the free play of the discussion, and would have been inserted more appropriately next to the chapter on Particles. The excellent table on page 79 should, for consistency, insert (1) *ν*, (2) *ν* under "acc. sing." immediately under the large type—*ν*,—ă. Should not the full-faced caption of section 139, read "Accusative with Adjectives" instead of "with Nouns"? The opening paragraph of section 176—"The term Tmesis is sometimes applied generally," etc.—needs a change in punctuation in order to rescue the sense. But these are trivial matters. No man who is teaching Homer, even to beginners, should be without this book. There are scores of citations that would be directly useful and hundreds of others indirectly so. It is, as I have said, an herbarium of Homeric specimens; and as from the study of well-ordered herbaria or extensive botanical collections, one goes forth to see the natural flowers lift their heads with a new freshness, so he who consults this book will see unfold before him the wondrous color and fragrance of that versatile dialect which was the medium—or the product, who knows?—of the glorious mind of that

> "Old man, who, clearest-soul'd of men,
> Saw the wide prospect and the Asian Ten,
> And Tmolus hill, and Smyrna bay, though blind."

BENJAMIN GILL.

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An Anglo-Saxon Reader.—Edited, with Notes and Glossary, by JAMES W. BRIGHT, Ph. D., Associate Professor of English Philology at the Johns Hopkins University. New York: Henry Holt & Co., 1891, pp. viii, 385.

In the author's own words (p. iii), "this book is planned for an introductory course in Anglo-Saxon. The glossary has been constructed so as both to facilitate the use of a grammar and to reduce the necessity of grammatical notes. Cook's excellent translation of Sievers's Grammar has made available for references the best exposition of Anglo-Saxon phonology and inflection. March's Grammar will assist the teacher in matters relating to syntax."

But the distinguishing features of the work will hardly be gathered from the author's modest preface. These become patent only from close examination. First, we have a new selection of pieces from old English literature, prose and poetical, though not to the exclusion of well-known favorites. The selections new to Anglo-Saxon readers will serve to give a more comprehensive view of old English literature, and lend additional interest to the later study of complete texts. The pieces are arranged so as easily to introduce the pupil to the reading of old English. Part I consists of a chapter from St. Mark, and of excerpts from Alfred's translations ; while the remaining pieces are arranged chronologically ; the prose coming first, and the poetry last ; the whole ending with the full text of the Phœnix.

Again, the texts are based either upon an independent study of the MSS. by the editor, or upon quite recent editions of the works by other scholars. The text is given without normalization, with occasional emendations clearly indicated as such, and with full variant readings. Throughout, the quantity is marked in accordance with the latest results of Germanic philology. This course must lead the student to a better knowledge of the monuments studied, and gradually induct him into the method of constructing a critical text.

Though occupying but little space, the notes are of the utmost help. Grammatical details having, in the main, been relegated to the glossary, the editor is free to treat his selections as excerpts from a noble national literature, and as no mean part of the world's literature. Accordingly, with each monument are mentioned the books most helpful for its study, so that colleges and students may provide themselves with the apparatus necessary for the broad and critical study of the beginnings of English literature, some knowledge of which, it is generally conceded, is essential to the understanding of any subsequent period.

Appendix I gives Lactantins's *De Ave Phœnice*, of which the first part of the O. E. Phœnix is an adaptation or a paraphrase. In Appendix II is given a brief but comprehensive account of Anglo-Saxon versification, upon the basis of Sievers's researches. As the first didactic presentation of a subject as interesting in itself as essential to an understanding of the subsequent development of English metrical systems, this chapter alone makes the Reader indispensable to every student of Old English that has not access to Sievers's articles.

The glossary classifies the verbs, gives their principal parts, and thus helps the student over one of the chief difficulties in O. E. grammar. In all cases of irregularities in inflexion, reference is made to Sievers's Grammar, where full explanations may be found. Further, the regimen of adjectives, prepositions, and verbs is briefly indicated. The citations are practically complete, except in the case of pronouns, etc., and the glossary may be tested by reference to the text. Besides this, numerous etymological hints are given that solve many questions sure to arise, and suggest many more likely to be overlooked—a feature of invaluable assistance in the study of O. E. phonology.

Where so much is excellent, it may seem ungracious to suggest possible improvements; and yet I cannot but regret that all variations from the normal form (nom., infin., etc.) have not been entered in the glossary with cross references to the latter, a plan sure to save the beginner both time and perplexity. Perhaps, too, the author might have been more liberal with his emendations: for instance, ll. 9–13, on p. 13, might have been made to agree with the emended Latin text of the notes. As is almost unavoidable in the first edition of a work of the kind, a few typographical errors have crept in.

To revert to the author's plan: as we have seen, he intends the Reader to be used with Sievers's Grammar; and for those beginning the study of Old English as late, say, as the junior year of the college course, better text-books cannot be found. Indeed, the glossary is made upon such an excellent plan that students taking up the study earlier (in the South, as a rule, in the sophomore year) may find these two books the best to introduce them to a knowledge of Old English. If, however, any teacher should prefer a simpler grammar than Sievers's, he can readily alter the paradigms in one of Sweet's books to Sievers's classification and still use Bright's Reader. Whatever grammar may be selected, we feel sure that this Reader will be widely used, so superior is it to all works of the kind hitherto published. Its use is bound to uplift the ideal of Old English study and the author is entitled to and will doubtless receive the gratitude of all students of English.

MORGAN CALLAWAY, JR.

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Choice Readings: Being complete works by ten celebrated writers, selected, edited, and annotated for use in schools.—By CHARLES W. COLE, A. M., Ph. D., Superintendent of Schools, Albany, N. Y. New York and Chicago: Taintor Brothers & Co., 1892, pp. 351.

Wells of English.—By ISAAC BASSETT CHOATE. Boston: Roberts Brothers, 1892, pp. 310.

Studies in English Composition, with lessons in language and rhetoric.—By HARRIET L. KEELER and EMMA C. DAVIS. Boston: Allyn & Bacon, 1892, pp. IX, 210.

Superintendent Cole, in his *Choice Readings*, has prepared a most charming and a most useful book for school reading. The opinion is rapidly gaining ground that the ordinary school readers, composed in part, as they are, of "bits" and "pieces" from great authors, and in part of literature of very inferior workmanship, do not serve the purposes that ought to be kept in view in teaching reading. It is not enough to teach to read. It is not enough even to teach children to understand what they read. The teacher must also implant a taste for what is good in literature. Unless this taste for good reading is implanted, the power to read is too often an injury, rather than a benefit, to the moral nature. Literature that is evil in its tendencies is so easy to find, is so plentiful and so cheap, and withal appeals so powerfully to the baser instincts, that it is one of the most active agencies toward moral corruption in the modern world. The only antidote for the poison is the love of good literature, and this is to be acquired only by the patient, reverent, and appreciative study of good literature. As I have said, the school readers do not supply the necessary material. We can no more appreciate the beauties of a piece of literature by reading one of the excerpts in the reading books, than we can realize the beauty of a Greek statue by studying a mutilated nose or a fragmentary arm. Each selection in Mr. Cole's book fulfills these conditions. Each of them is a worthy specimen of good literature. Each of them is complete in itself. Superintendent Cole's notes are brief, but they supply all that is necessary to elucidate difficulties or obscurities in the text.

The tendency of the study of literature at the present time is toward the works of the great writers. Mr. Choate, however, has given us, in *Wells of English*, a study of many minor writers whose names are enrolled in the history of English literature from the middle of the thirteenth to the beginning of the eighteenth century. With him it is obviously a labor of love to write of the lesser lights of our literature. He has evidently studied them with patience and critical insight. And yet the question arises: to what purpose was the book written? The studies are all detached. There is no tracing of the evolution of literature, of language, or of style. And it may be added that while some of the writers treated of have won for themselves imperishable fame, others have been deservedly allowed to sink into the grave of oblivion. The latter it is useless to resurrect. There are hundreds of writers of the present day whose works are infinitely more worthy of study.

In their *Studies in English Composition*, Miss Keeler and Miss Davis have given us a book from which high school teachers of English may derive many useful hints. As a rule, the exercises are much better done than the theoretical parts of the book. Even some of the exercises, however, are of very questionable ability: those, for instance, that involve the writing of book reviews. The plan of the book, however, is good, the intention being that the study of good models should always prepare the way for original composition.

W. H. M.

A Primer of English Verse, chiefly in its æsthetic and organic character.—By HIRAM CORSON, LL. D., Professor of English Literature in the Cornell University. Boston: Ginn & Company, 1892, pp. 232.

There are not wanting signs of a wide increase in the study of English verse in at least a dozen American colleges. There are now courses in English versification, sometimes practical and designed to aid the apprentice poets of the senior year, sometimes critical and intended to stimulate the appreciation of the masters of meter. The publication of Professor Gummere's *Handbook of Poetics* is one such sign, and the publication of Mr. Parsons's *English Versification* is another. This book of Professor Corson's is yet a third. Strictly speaking, the title seems a misnomer. At least it is difficult to frame a definition of a primer which would include a treatise like this. A primer is a work for the primary scholars, for the beginners; and Professor Corson's criticism and comment and analysis seem fit rather for the more mature minds of the senior class.

But, however misnamed, the book is none the less welcome for what it is; and it contains much that every student of English verse will be glad to have. It is intended to open the senses of students to the metrical beauties of poetry and to awaken their perception of the graces of form. Professor Corson considers in turn the origin and the principles of the poetic unities and the effects produced by exceptional and varied meters, and by a shifting of the regular accent, and by additional unaccented syllables. He gives examples of organic variety of measures and he analyzes some of Tennyson's stanzas, and the Spenserian stanza as employed by its creator and by subsequent poets. He concludes with discussions of the sonnet and of blank verse; he does not pay any attention to any fixed form of verse except the sonnet, nor does he take up any unrhymed meter except iambic pentameter. Perhaps an investigation of the fixed forms used by Villon and his predecessors in France would reveal a close relation of the Spenserian stanza to the *ballade* octave, due probably to the devout study which the author of the *Faëry Queen* gave to the author of the *Canterbury Tales.*

Professor Corson's little book will be useful to all who have taken up the fascinating study of metrics. One could wish that the author had not retained in his extracts the absurd British spelling of *colo*U*r* and *odo*U*r*, which is annoying to the American eye. One wonders a little at the violence of the attack on Dryden as a critic (p. 107), and we admire not a little at the patience of the classes at Cornell to which professor Corson has read aloud every year Browning's *The Ring and the Book*—the entire poem, 21,134 lines!

BRANDER MATTHEWS

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The Works of Horace.—Edited, with Explanatory Notes, by THOMAS CHASE. LL. D. (Harvard), late President of Haverford College. Revised Edition. Philadelphia: Eldredge & Brother, 1892, pp. 458. Price. $1.10.

The first edition of this book was published in 1869, and now after twenty years the editor sends it forth again with many changes and corrections. In its old form it represented a class of text-books which was more common in this country once than now. The plan of composition was very simple: an editor would procure from his bookseller the editions current in Europe, and from them would select whatever he thought useful for American students. Chase followed this plan, and to his original supply he has now added eleven new authorities, some as old as Cruquius and Tanaquil Faber, but most of them the new editions of the last few years. The text, originally an eclectic one, has been changed in several places, more often in orthography merely; and the notes show everywhere the influence of Schütz and Kiessling. Comparatively little has been added, and the size of the book is not materially increased. The arguments have been rewritten, the dates in many places changed, and the whole book brought down to date. Probably there is no American edition of the entire works of Horace which better represents the present state of Horatian criticism, but the last edition worthy of being named was that of Lincoln in 1866. In Chase's work the fault is not so much one of detail as of plan. It is a hazardous task to try to explain Horace in the space of 458 pages, and still more so to try within this brief compass to make a complete school edition. The first and most important matter which has been sacrificed is the comparative study of the poems. Cross-references are very rare. Even in the index to proper names, Tibullus is described twice, once under Albius and again under his better known name. Illustrations from other ancient writers are infrequent; and when given are often useless to those for whom so elementary an edition is intended, such as the references to Servius and Priscian on *Ars Poetica* 65. And on the metrical side the book is weak; in the metrical introduction logaœdic verse is unmentioned, and in the body of the notes the meter is neglected. Chase's interpretations are easily defensible; among the forty authorities there is always some one who will protect him: still one longs for the independent judgment of Schütz, the leisurely treatment of Wickham, or the literary taste of Nauck. The notes are terse and plain, necessarily short; but it is to be hoped that the barbarous "illy" will be expunged from the comment on Odes 4, 12, 7. The constant change in translation from "thy" to "your," and similarly from "thou" to "you," is for the better. On the printer's side the book is pleasing, the solid page having been broken into paragraphs. The amusing reference to Whitefield's adaptation of Odes 1, 7, 27, is still given in spite of Bentley's note, and often Chase is unfortunate in his modern parallels; yet the book has much of value and will doubtless meet with the same popular acceptance as its predecessor.

W. A. MERRILL

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IX

EDITORIAL

The meeting of the National Educational Association at Saratoga was successful even beyond expectation. It was easily the best educational meeting ever held by that great body. The excursionists and careless hangers-on were conspicuously absent, and in their stead there came several thousand of the most devoted and enthusiastic teachers of the country, together with almost every distinguished leader of educational thought and educational administration in the United States. The well arranged series of Round Table conferences attracted a remarkable group of men and women interested in the serious study of philosophy and pedagogy. The papers and discussions were able, vigorous, and timely, and the work of the several departments—particularly the manual training department, under the intelligent and enthusiastic leadership of Assistant Superintendents Leipziger and Hoffman of New York—was conducted on a high plane.

The Saratoga meeting gave but little comfort to the philistines and perpetual phrase makers. It was a serious and determined body, in which the progressive element was more largely represented and more influential than ever before. There was a conviction that work was to be done toward solving the educational problems of the country and that the National Educational Association was the proper body to lead the way. It was felt that the continued piling up of large sums of money was unnecessary and dangerous, and would lead to foolish expenditure, if not to downright jobbery. In fact, the result of the meeting was to arouse a new enthusiasm in the minds of some of the strongest men in the country, who had almost despaired of seeing the Association roused from its lethargy and debating-society attitude.

Much of the credit for this changed condition of affairs must be given to the organization of Round Table conferences, began at Toronto in 1891, and greatly extended, under the direction of Dr. Harris, at Saratoga. As was sure to be the case, these Round Tables of small groups of specialists, discussing technical philosophical and pedagogical questions of fundamental importance, were scoffed at by the educational "boomers" and "whoopers-up," who do not understand such questions and care nothing about them. No little ridicule was heaped upon some of the technical terms employed at these conferences. But, nevertheless, they were held, and were very successful and very stimulating. Men and women were drawn to the Association, and led to take an interest in its general work, who had never been near it before. At the close of the session the Round Tables were formally adopted by the directors as part of the work of the Association, and a committee was appointed, consisting of William T. Harris, James MacAlister, and Nicholas Murray Butler, to take special charge of their organization and future conduct.

But by far the most important and far reaching step taken at Saratoga, was the action of the Council and Board of Directors in resolving to undertake some specific pedagogical investigations. The committee appointed at Toronto[1] also reported in favor of this step. The specific action taken grew out of a conference of representatives of colleges and secondary schools called, by authority of the National Council of Education, to meet in Saratoga on July 8. This conference was well attended, some thirty leading institutions having sent delegates. Harvard, Columbia, Cornell, Vassar, University of Nebraska, University of California, Oberlin, and Wesleyan were among the colleges participating. After a careful discussion, extending over three days, it was decided that a special effort should be made to improve and systematize the work of the secondary schools. It was agreed that uniformity in their work, and a single curriculum as a preparation for college, were neither possible nor desirable. On the other hand, it was felt that the twenty odd subjects taught in secondary schools should be carefully examined by specialists with reference to these four points: (1) What topics of each subject should be taught in secondary schools, and in what order; (2) what method of presentation is the most efficient; (3) how many week-hours per year should be devoted to each subject taken up; (4) what tests of proficiency in every such subject can be devised. The value of such an investigation as this is apparent. Its results will fix the standards of secondary school work in the United States, and great benefits will accrue not only to such schools but to the elementary schools and the colleges as well. To carry authority, however, the specialists must be selected with great care and their conclusions must be compared and co-ordinated by a representative body. The conference selected as such a body a Committee of Ten, as follows: President Charles W. Eliot of Harvard University (chairman); Dr. William T. Harris, Commissioner of Education; President James B. Angell of the University of Michigan; Mr. John Tetlow, Master of the Girls' High School, Boston, Mass.; President James M. Taylor of Vassar College; President James H. Baker of the University of Colorado; President R. A. Jesse of the University of Missouri; Mr. O. D. Robinson, Principal of the Albany (N. Y.) High School; Mr. James C. MacKenzie, Headmaster of the Lawrenceville (N. J.) School; and Prof. Henry C. King of Oberlin College. This committee was confirmed first by the Council and then by the Board of Directors, and twenty-five hundred dollars was appropriated to pay the expenses of the investigations. This is a noble use of the funds of the association, and, so spent, its value will increase a hundredfold. If this experiment is as successful as its friends anticipate, other investigations will undoubtedly follow, and, in undertaking them, the National Educational Association will become a practical power for good in the land.

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[1] Educational Review, II: 278.

To the great satisfaction of everybody, the question of the relation of the Association to the international congresses to be held at Chicago, in 1893, was amicably settled. The great educational congresses are to be organized and conducted by a committee of the National Educational Association, the World's Congress Auxiliary co-operating as a local committee of arrangements. Of the former committee the Commissioner of Education is chairman. His associates are James MacAlister, art education; William H. Maxwell, school supervision; W. N. Hailman, kindergarten; Nicholas Murray Butler, higher education; Ray Greene Huling, secondary education; James L. Hughes, elementary education; E.

Oram Lyte, normal and training schools; Andrew J. Rickoff, manual training; N. Coe Stewart, musical education; C. W. Bardeen, educational publications; Francis A. Walker, technical education; G. Stanley Hall, experimental psychology; and J. G. Schurman, rational psychology.

These congresses will be held late in July, 1893, to meet the convenience of the foreign representatives, and will occupy about one week. The National Educational Association will not assemble as such, but in connection with the congresses. For this reason the general and departmental officers elected in 1892 will hold over until 1894, when the next regular meeting will be held. Seattle, Helena, Milwaukee, and Denver are all talked of as the place of meeting in 1894, but the last named city seems to be the favorite.

The weighty address on Sex in Education by Sir James Crichton-Browne, the substance of which appears elsewhere in this issue, has attracted attention and provoked controversy on both sides of the Atlantic. The array of facts cited by the learned orator constitutes a very real addition to the general knowledge of the intricate subject of the psychology of sex; but it may legitimately be doubted whether any very definite and dogmatic conclusions, unfavorable to the higher education of women when that education is properly organized and supervised, can be based upon it. Overpressure and defiance of hygienic rules are quite as injurious to young men as to young women, and it is very special pleading to ignore the fact. High schools and colleges for women may not be as well administered in Great Britain as in America; but, even so, the proper remedy is their improvement, not their abolition or curtailment.

Theodore W. Dwight, emeritus professor of law in Columbia College, whose death occurred at the beginning of the summer vacation, was perhaps the greatest teacher of his country and generation. This is the uniform testimony of the thousands of able men, now the leaders of the legal profession in the United States, who were his pupils. His profound knowledge, his power of clear statement, and, above all, his intuitive sympathy with the student's point of view and his appreciation of it, gave him a power in the class-room that few teachers have ever had. Professor Dwight knew nothing of pedagogic devices, but he was a great pedagogue. He himself was a method of teaching. His power was personal, and cannot be bequeathed or imparted to others. The attempt to make the public believe that there is a "Dwight method" of teaching law, or anything else, is a hollow mockery. It is an unworthy attempt to derive pecuniary profit from a great name and reputation.

A curiously stupid effort is being made by a small clique of persons, whose interest in education is not entirely scientific or philanthropic, to convey the impression that the college men, who are now taking a greater part than ever before in educational discussions—to the immense improvement of these discussions, by the way—know nothing about the details of common school work or the limitations under which it is carried on. Very often this policy takes the form of personal abuse, public or private, of the college presidents and professors in question. President Eliot, in particular, has been subjected to treatment that is simply outrageous. Because he has said some things about high school and grammar school work that individuals directly responsible for that work do not like, he has been vilified and abused by the representatives of the dominant optimistic, self-glorifying philistinism in a way that would do credit to Billingsgate. As a matter of fact, President Eliot's knowledge of what the elementary and secondary schools are accomplishing, both here and abroad, is both extensive and accurate. Ever since he appeared before the Department of Superintendence at Washington, some four or five years ago, at the invitation of Mr. Dougherty of Peoria, he has made important contributions every year, and of a very practical character, toward the solution of our present common school problems. No other one person has accomplished and suggested half as much in that time as the President of Harvard. It may safely be predicted that the substance of the reforms marked out and contended for by President Eliot in the college, the secondary school, and the elementary school, will, in time, become characteristic of our American educational organization. They are not only theoretically sound, but, what is even more important, entirely practicable.

An interesting document may be expected when the full answers are published of the faculties of the several German universities to the questions addressed to them by the governmental authorities, regarding the admission of women to university privileges. If present signs are not misleading, some radical steps will follow the collation of these replies. It is true that most, if not all, of the faculties of philosophy have given answers unfavorable to the admission of women. But, on the other hand, leading conservatives like Professor Grimm of Berlin are abating the violence of their opposition, and the authorities of Baden have authorized the University of Heidelberg to admit women to the courses offered by the faculty of mathematics and natural science. Slowly, but surely, women are entering the universities of the world on equal terms with men. At St. Andrews in Scotland, and at Yale and the University of Pennsylvania in the United States, full university privileges in philosophy, philology, and letters are now open to women; while at Oxford and Cambridge, Harvard and Columbia, the privileges are thinly veiled under annexes or affiliated colleges.

President Thwing of Adelbert College is of opinion that the summer vacation is too long. In this contention he is, we believe, not justified. The summer vacation is too long to be wholly wasted, but it need not be. It is not too long for either teacher or pupil to get relief from the routine of the academic year and carry on studies for which the demands of the regular school and college work leave no time. For the ambitious and active college professor, the summer vacation is a period of hard work. Investigations are carried on, researches made, other institutions and lands visited and studied. Every bit of this work is educational in the highest sense. Not a week of the present summer recess can be surrendered without loss of educational efficiency.

This same question has been agitated recently in Europe, and Professor Flemming of Kiel has brought together some interesting information on the subject. At Oxford and Cambridge there are twenty-four weeks of vacation every year; at University College, seventeen weeks; at the Scottish universities, nineteen; at the French faculties, from seventeen to twenty-two; in Belgium and Denmark, nineteen; in Russia, Sweden, and Norway, eighteen; at the German universities, from seventeen to twenty-two weeks. By an ordinance dated January 5, 1892, the Prussian Ministry of Education ordered that the summer semester at the universities must hereafter begin on the Wednesday after Easter, and continue for sixteen weeks, with a recess of not exceeding seven days at Whit Sunday. The winter semester will hereafter begin on October 10, and continue until the last day of February, a recess of not less than ten nor more than sixteen days being granted at Christmas.

A number of protests have reached the EDUCATIONAL REVIEW against the practice of many colleges in conferring the degree of Doctor of Philosophy as an honorary degree. This pernicious and demoralizing practice was more marked at the last Commencement season than ever before. Scores of these degrees were given without any warrant whatever. It cannot be too strongly insisted upon that no college is justified in giving this degree at all, and no university should confer it except for advanced study and research carried on in residence. The suggestion has been made that the EDUCATIONAL REVIEW should make a list of the colleges that persist in this abuse and publish it from time to time. It might be more efficacious to print a list of the persons who receive and accept such a degree.

EDUCATIONAL REVIEW

OCTOBER, 1892

I

THE ORGANIZATION OF AMERICAN EDUCATION

The historian of one of our Maine towns, naturally desirous of including as many great names as possible in the number of its sons, discovered to his great disappointment that one who had always been regarded as the most distinguished son of the town had the misfortune to be born in a neighboring town to which his parents were making a visit. Wishing to give all possible glory to his town, and at the same time to be strictly faithful to historic fact, the judicious historian stated the case as follows: "Dr. A. was born in this town, though his parents were absent at the time." American education was born in similar circumstances. The professors of pedagogy were absent at the time. American education, like Topsy, "just growed." It has already outgrown the ideals which gave it birth.

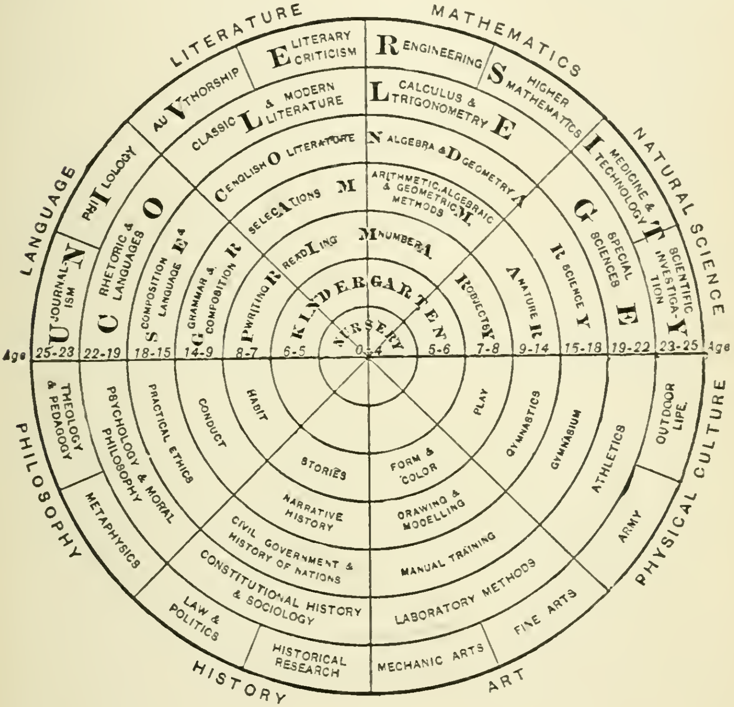
Let us recall briefly what these ideals were. First came the ecclesiastical ideal, the parent of the New England school, academy, and college, having the training of a learned clergy as its foremost purpose. Next came the political ideal, the parent of the free public school, claiming public support on the ground of the necessity of education as a basis for an intelligent suffrage. Then came the industrial ideal, which has justified what otherwise would have seemed to penurious parents an inordinate amount of "schooling," on the ground of its commercial value.

While these partial and relative ideals have been doing their work, there has been springing up within the minds of the American people an ideal of education, deeper, richer. truer than any of these, and broad enough to include them all. It is the social ideal of complete and rounded manhood and womanhood; the ideal of a life so full of interest and enthusiasm and intelligent delight that it shall be worth living in and for itself; the ideal of humanity as an end in itself, and of education as an indispensable means to its realization. Our fathers builded better than they knew. This social ideal is the child of the union of the two ideals which were most prominent in their minds: the ecclesiastical and the political.

This social ideal of an intelligent, and noble and happy human life, whether we like it or not, whether we believe in it or not, whether we vote for it or not, actually has come to be the guiding principle in American education. On no narrower grounds can we justify what we have done, and are about to do. Since this ideal is destined to rule, it is well for us to reckon with it, and see precisely what it means, and what changes it calls for. For whatever this ideal demands, we shall be compelled to grant. Here in America we tolerate no outside interference in educational affairs. Before one authority, and one only, we bow in absolute submission: the authority of clear ideas, cherished in the hearts of the people.

It is my purpose in this article to point out the forms in which this social ideal of education is embodied and expressed in our educational system, and to indicate the changes it will welcome, and the attempted changes it will resist. I promise no new and shorter route to the riches of some intellectual Indies. I shall try to make it clear that the educational world in which we have been living all the time, is not a flat surface, on which subjects for study have arranged themselves by accident; but that it is a sphere, the parts of which are related to each other by necessary laws, and the functions of which are to be determined by reference to this social ideal which is their common center.

The particular scheme which I present will doubtless fail to win the approval of a single person. I expect it to be criticised, rejected, and condemned. That is what it is here for. My consolation lies in the assurance that "victi victoribus leges dederunt," and that in this case, in rejecting my conclusions, the reader may be led to take my point of view, and think out the problem of the organization of American education on these lines to more successful issues. It is presented for the sake of its form rather than its contents.



The diagram consists of seven concentric circles, representing the seven stages of education; the nursery, the kindergarten, the primary, grammar, and high schools, the college, and the university. The circles are divided by eight radii into eight arcs, representing as many departments of knowledge and training. The ever widening scope of education is represented by placing the nursery at the center, and advancing by constantly enlarging circles to the university on the outside, which is bounded only by the infinite. The university circle is subdivided in each department, presenting the practical profession on the left, and the theoretical pursuit on the right. The age of pupils in each grade, represented in the diagram, is the actual, not the ideal age. The shortening of the period devoted to the primary and grammar work, especially for those fitting for college, is manifestly an imperative necessity.

The department of language is represented by writing in the primary school, grammar or language study in the grammar school, composition and the study of foreign languages in the secondary school; rhetoric and more languages in the college, while in the university it becomes in its practical aspect journalism, using that word in the broadest sense as covering the communication of ideas by writing, and in its theoretical aspect, the study of philology.

The department of literature, which is so closely allied to language that it is impossible to draw a hard and fast distinction between the two, begins with reading in the primary school, and take up selections from the best authors in the grammar school; studies authors directly, and their works as wholes, in the high school; includes the literatures of the chief nations, ancient and modern, in the college; and at the university looks to authorship as its practical, and to literary criticism as its theoretical consummation.

Mathematics begins with number in the primary, passes to arithmetic in the grammar; to algebra and geometry in the high school; to trigonometry and calculus in college; and in the university becomes practical in engineering, and theoretical in the higher mathematics.

Physical science begins with the study of natural objects in the primary school; studies the more obvious and impressive aspects of nature in the grammar school; presents the outlines of the more general and comprehensive sciences in the high school; enters upon the more detailed study of special sciences in the college; and in the university finds practical application in technology and medicine, and its theoretical continuation in special scientific investigation.

Physical culture is provided for in the primary school by play, and rhythmic movements in unison; in the grammar school by Swedish or other convenient system of gymnastics; in the high school by the more difficult and interesting gymnastic feats; in college by manly sports and athletics; and has its special practical application in military life, and is continued by life in the open air.

Art should begin with studies of form and color in the primary school; deal with drawing and construction in the grammar school; become manual training in wood and metal in the high school; keep its hand in by laboratory methods, and by special study of art in the college; and lead in the university either to the mechanic arts or the fine arts.

History should begin in the primary school with stories; lead to connected narratives in the grammar school; take up the history of nations and institutions, and the forms of government in the high school; deal with constitutional history and sociology in the college; and open out into law and politics as the practical, and historical research as the theoretical conclusion in the university.

Philosophy in the primary school consists in training the children in right habits; in the grammar school it is instruction in the principles of right conduct; in the high school it is a presentation of practical ethics in its reasonable and necessary laws; in college it is psychology and moral philosophy; in the university it is theology and pedagogy if practical, metaphysics if theoretical.

The first and most obvious corollary to be drawn from this diagram is the principle that knowledge advances from the general to the particular; not, as has often been supposed, from the particular to the general. The nursery is the place where study is most general and universal. As Professor James says, "The baby, assailed by eyes, ears, nose, skin, and entrails all at once, feels it all as one great, blooming, buzzing confusion. The first sensation an infant gets is for him the universe. And the universe which he later comes to know, is nothing but an amplification and implication of that first simple germ which, by accretion on the one hand and intussusception on the other, has grown so big and complex and articulate that its first state is unrememberable."

Knowledge is from within outward, and proceeds from the universal to the particular. As Browning has said,

> "To know,
> Rather consists in opening out a way
> Whence the imprisoned splendor may escape,
> Than in effecting entry for a light
> Supposed to be without."

The kindergarten is a continuation of the processes of the nursery; and retains the same universality of subject matter. The separate departments are not here marked off and named. The child is still getting acquainted with self and the world. The glory of the kindergarten is its emphasis on education as a letting-out of power, instead of a cramming-in of information.

The well conducted primary school retains many of the methods of the kindergarten. The long names of the several departments of study remain unknown. I was looking over some papers in a Boston primary school not long ago, and I noticed that while their work with numbers was excellent, their spelling of the word arithmetic had but one characteristic in common—that of being wrong. I asked the teacher how that happened. "Why," she said, "they never saw or heard the word until it came to them on the examination paper." The grammar school presents the departments for the first time as distinct and separate subjects. And yet good teaching makes one department help all the others at this stage. Drawing, for instance, enters into everything. In the examination books of the grammar grade of the same school, whether it was the articles mentioned in a problem in arithmetic, or a product of the country studied in geography, or a scene described in English literature, or an experiment performed in physics, or bones and muscles described in physiology, or an event related in history, everything was accompanied by a sketch to give it reality and life.

In the high school, the eight departments become distinct, and are pursued in different ways, and often in different courses.

In the college, differentiation between different branches of the same department comes in. There is a professor, a room, and a library or laboratory for each of several sciences and languages. Ground which the high school would go over in a term in its general way is subdivided in the college so as to occupy several courses each a year or more in length.

Finally, in the university, fields which occupy a year of study in the college, widen out so as to give opportunity for a three years' course in several of their subdivisions.

This progress from the universal to the particular is the secret of that increasing modesty which comes with advancing knowledge. The graduate of the lower schools thinks he knows everything. In a sense he does; only he does not know much of anything about it. The graduate of college or university begins to realize the tremendous sweep of the vast circle of special knowledge, and hence he sees how small a fraction of it he has compassed. This is why knowledge and the conceit of knowledge are always in inverse ratio. It shows, too, very clearly why there is no such thing as an end to the process, or a finished education.

I propose to consider in order the five great institutions in our educational system, the primary, grammar, and high school, the college and the university, with a view to the part each must perform, and the contribution each must make, in order to fulfill its function in a system the end and aim of which is the richest life, the completest manhood, the highest social well-being of the citizens of a republic.

The primary school can no longer confine itself to "the three R's." A primary school thus restricted covers only three out of the eight departments which must lie at the base of a symmetrical education. The accurate observation of natural objects must lay the foundation for future scientific interest. Inasmuch as it is impossible for children at this stage to confine their attention for over twenty minutes or half an hour at a time to self-directed study, there must be frequent intervals of exercise and recreation. The five or six hours of close confinement in artificial positions which has done so much to injure the health of growing children, must give way to shorter hours, broken by exercises and diversions which will tend to strengthen the body and improve the health.

The bodily exercise may be combined with exercise of mind. Modeling in clay, paper-folding, drawing, not only develop the powers of eye and hand, but bring them under the control of mind and will, and have intellectual and moral results in accuracy, patience, perseverance, and self-control, as well as æsthetic results in improved taste and appreciation of symmetry of form and beauty of proportion.

Stories of heroes, explorers, stirring adventure, and brilliant exploits will awaken the interest in human deeds, which later will find its proper food in history and biography.

Discipline in punctuality, prompt obedience, neatness, orderliness, thoroughness, and politeness, will lay the foundation for that conscious direction of life in wisdom's ways which is philosophy.

With good teaching it is perfectly possible to do all these things and make just as much progress in reading, writing, and arithmetic as is ordinarily made in the primary school in which these are the only subjects taught. The expansion of the curriculum in these directions simply takes advantage of the child's natural curiosity and interest, and turns into pleasant and profitable channels energies which hitherto have been either wasted in dawdling or repressed by the rod.

The bane of the grammar school has been the narrow industrial ideal that has been forced upon it by narrow-minded parents. In order to keep children in the grammar school it has been thought necessary to offer a course which the most stupid and hard-headed parent would regard as practical. The tendency of this subserviency to the narrowest sense of the word practical has been to keep the grammar school down pretty closely to a continuation of "the three R's." The acceptance of the social idea will work reforms here in nearly every department. Reading will be no longer confined to "pieces" from a reading book; but will deal with continuous selections from the best authors. Literature will be dissected less, and enjoyed more. Arithmetic will not be carried to its remotest commercial applications; and instead algebraic methods will be introduced for the solution of the more difficult problems; and children at this stage will learn to know what a geometrical demonstration is.

Without attempting to treat any particular science exhaustively, the more obvious phenomena of physiology, hygiene, astronomy, botany, political and physical geography, and physics, will be made intelligible to the children at this stage.

The Swedish, or some equally simple and convenient system of gymnastics will be a regular exercise.

The beginning made in the study of form and color in the primary school will be continued by drawing and construction of forms and objects in the grammar school. They will know how to express their thoughts through hand and eye as well as by tongue and lips.

The consecutive narrative of English and American history, with enough of general history to give their rightful setting to the history of these nations, will be so taught as to convey the sense of the continuity and causation of events, rather than the mere chronicle of names and dates.

Without attempting to construct a system of morality, the teacher will encourage pupils to inquire into the reasonableness of moral rules and customs, and to see their necessity as well as to respect their authority.

The narrow ideal of industrial utility does not press so hard upon the high school and academy as upon the grammar school. Parents who send their children to the high school and academy thereby manifest a sympathy with the liberal, or as I have called it, the social ideal of education. Or if there is the lack of this liberality on the part of a portion of the scholars, the high school turns them over to an English, or business course, and leaves its classical and scientific courses free for the purposes of a liberal education.

The requirement of some language other than English of as many as can be made to bear it should be made on the ground that he who knows but one language knows none in a thorough and rational manner. The substitution of the direct study of authors in literature for the cramming of dry and dreary text-books about them; and the study of classical literature in translations for those who do not intend to study it in the original, are the next steps forward in the department of literature in high schools. The application of mathematics to surveying gives a reality and interest to this most abstract of studies.

The high school can make a good beginning in the outlines of zoölogy, botany, chemistry, physics, and astronomy. One or more of these sciences, taught by actual work in the laboratory, should be required of every student, whether he be fitting for college or not.

Gymnastic feats, games, and sports, will best continue the gymnastics of the lower schools. Severe training for athletic contests should be discouraged at this period, as likely to injure growing youth.

Students who have had manual training in the earlier stages will now be ready to undertake work in wood and metal.

History may now penetrate beneath the surface and study the growth of nations instead of the narrative of events. The forms of civil government may be taken up in connection with the study of history.

Students are by this time sufficiently mature to study the relations of duties to each other, and to see duty and virtue, not as a sum of separate and arbitrary rules and regulations, but as the indispensable and inter-related conditions of individual and social well-being. Without attacking the subtleties of moral philosophy, they can master the essential principles of practical ethics.

A high school or academy in which these subjects are taught will at the same time be an adequate preparation for college, and a valuable preparation for practical life.

In the college the question of required and elective studies becomes most important and most difficult. In the primary school the subjects are so general and fundamental that all must be required. In the university, on the other hand, the circle is so vast and the subjects so highly specialized that everything must be elective.

The departmental method of instruction gives promise of the possibility of a slight degree of election, as that of a foreign or ancient language, in place of the refinements of English grammar and arithmetic, even in the grammar school.

In the high school the demands of the widening circle of knowledge, and the limitations of the pupils in maturity and judgment, have resulted in giving a pretty wide range of choice. It is, however, choice between courses rather than between particular studies.

The circle of studies represented in a college is too vast to be required of everyone. The attempt to scatter energy equally over so broad a field inevitably results in vagueness, generality, and superficiality. It is merely a continuation of a high school course under a false name. A course entirely elective, on the other hand, is liable to be so specialized as to stunt and dwarf powers that must be developed at this period or remain forever undeveloped. This is giving a university course to students who are not ripe for it.

The college should require from every student some thorough work in each of the great departments of human knowledge; and at the same time give each student opportunity to pursue two or three of these lines far enough to come in contact with their problems at first hand, and feel the thrill of intellectual ardor that comes from bivouacking on the outposts of scholarship.

A course about half required and half elective is that which best fulfills the function of the college in the educational system. The college which does not aim at some such adjustment of its courses is unworthy of the name. High school it may be. University it may want to be. College it is not.

The college stands pre-eminently for the social ideal of a liberal education. It is free from interference from town or city. If it is not true to the ideal of a liberal education, it has no one but itself to blame. The ideal college course is not so easy to mark out as is that for the lower grades. The college must require of its graduates familiarity with the important languages, Greek, Latin, French, and German, and give opportunity for Anglo-Saxon, Spanish, and Italian in addition. It should require intimate and accurate knowledge of some of the masterpieces of both ancient and modern literature, and give opportunity for the thorough study of all the greatest writers of Europe and America. It must enforce the drill of algebra, geometry, and trigonometry on all its students, and give ample opportunity for study of the higher mathematics. The separate sciences must each have their professors, their laboratories, and their facilities for individual work. The college should require of every student familiarity with the scientific method of study in at least one important branch of science, and give opportunity for the study of at least five or six of the leading sciences.

The college may well require regular exercise, and reasonable proficiency in such manly sports as sparring, fencing, and wrestling of all its students, leaving athletics to the free choice of the students under competent medical supervision.

The laboratory methods of scientific study will keep up the dexterity acquired in previous manual training, and electives in the fine arts will continue the artistic development.

Some knowledge of constitutional history and political economy should be required of all college graduates, and there should be numerous electives in history and sociology. All should be required to study psychology and moral philosophy, and there should be electives in these subjects, and in metaphysics.

The distinguishing feature of American education is the college. There is nothing exactly like it in any country in the world. In European countries the first half of the work done by an American college is done in institutions corresponding to our high schools and academies; the last half is done in the university.

There is a great deal of talk at the present day about the excellent features of these foreign systems. Various schemes have been suggested for abolishing the college in whole or in part. More serious than all this discussion, however, is the attitude actually taken by universities which admit to university courses, university methods, and university freedom, students directly from the high schools and academies. Boys and girls who have had no training beyond the drill of the preparatory school; who have never assumed the direction of their own minds in any intellectual pursuit; who have never tasted literature, except in the dried extracts of the text-book or the set passages of a requirement; who have never carried science beyond the witnessing of a few spectacular performances by the instructor; who have never been trained to bring their nerves and muscles, their appetites and passions under either physical or moral control; who have never been trained to do a piece of neat and thorough work with hand and eye; who have never carried history and political science beyond the narrative of exploits, and the description of established institutions; who are utterly ignorant of the laws which govern the workings of the mind, and ought to govern the exercise of their wills;—these boys and girls are to be thrown into the distractions of city life; into the maze of university specialization; into the vastness of our outer circle. What will be the result? For persons resident in the vicinity and who can live at home these institutions offer exceptional advantages, though at the sacrifice of that undefinable but priceless experience which we call college life. For persons of exceptional maturity of mind and character these institutions afford opportunities for self-development, in many respects superior to those of smaller institutions. For the great majority of boys and girls who desire to continue their education beyond the high school, the immediate entrance upon the full freedom of university life is a misfortune.

The breaking down of health, of character, of serious intellectual purpose cannot fail to be vastly greater in the free life of a great university city than in the quiet seclusion of a country college town, where each professor knows his students, not by name only, but by their habits, their associates, their whereabouts. I know it is easy to sneer at virtue that needs to be secluded, and the character which is formed at a distance from temptation. It is true that strength is formed by conflict with the evil of the world. There may be something in the claim that it is worth while to sacrifice many weaklings to make one man of power. If these arguments were applied to mature men there would be much force in them. Applied, as in this case they are applied, to immature persons, they are absolutely fallacious. If mature men fall into temptation they have themselves to blame. If immature persons fall before temptations which, if they had met them in maturer years they would easily have overcome, then the blame rests with those who allowed them to be exposed to temptation prematurely. The colleges connected with universities receive a much larger proportion of the sons of idle, luxurious, and falsely ambitious parents whom it is impossible for any institution to save. But a large proportion of the men who come to nothing in these larger institutions, would be saved to respectability and usefulness, if not to honor and distinction, in the smaller colleges. The country college holds its students to an all-round development intellectually, and to individual responsibility morally, during the critical years from seventeen or eighteen, to twenty-one or twenty-two. As a result it turns out not specialists, but men. And you can always make a specialist out of a man afterward if you please. You cannot always make a man out of a person who has been made a specialist first. As long as character is of more consequence than manners; as long as symmetry is more to be desired than particular accomplishments in early training; as long as the achievements of mature life rather than the performances of youthful precocity are the test of the worth of education, so long the small college will continue to be the best place to send a boy or girl for the years succeeding the high school.

The American college is the peculiar product of American democracy. Democracy requires for its successful working that each individual who aspires to leadership shall be a tolerably complete and rounded being. Premature specialization will do well enough for a nation in which each man's place and function is fixed for him by caste or custom or imperial mandate. Democracy requires in addition to his special profession or craft, that each man shall be, as Simonides says, "built four-square in hands and feet and mind, a work without a flaw." The institution which continues the symmetry of elementary education until the elements of the languages, sciences, and social institutions are mastered, and prepares the way for intelligent specialization on this broad basis; the institution which has approved itself by sending forth the great majority of the men who have made the experiment of democracy a success; this institution will never be superseded by institutions whose proper sphere lies in another circle, nor discontinued to give room for an educational *régime* patterned after that of monarchical countries.

I will not attempt to discuss in detail the great variety of subjects with which the university must deal. I will confine myself to certain obligations which these institutions owe to our educational system, and to the community which it serves.

First, a university which is a university in fact as well as in name, will insist upon the equivalent of a college course as a condition of admission to that specialized study and that absolute academic freedom which are the prerogative of students seeking the higher degees. Not only candidates for the degree of doctor of philosophy, but also candidates for such professions as law, medicine, and the ministry, need all the breadth of culture, the openness of mind, the range of intellectual sympathy that a college course can give, before they narrow themselves down to the details of their special studies. If a sufficient number of powerful universities will take the lead, as some are already doing, and refuse to allow men to become candidates for these higher degrees without at least some elements of collegiate training, they will do much to raise the standard of the intellectual and professional life of the country.

There will soon come to be clearly recognized two kinds of men in these professions: those who have passed from a broad culture through the best institutions, and those who, with little previous training, have graduated at inferior institutions. I am well aware that in time past some of the most noble and useful members of these professions have entered them with little preparatory training. Such men are to be found in the front rank of all the professions to-day. The requirements of all these professions, however, are rising rapidly. What was possible twenty years ago is undesirable to-day, and should be impossible twenty years hence. If the universities will only insist on it, we can just as well have college-trained men in these leading professions as not. It is of immense importance to the welfare of the country that these professions shall be in the hands of men of the broadest and most thorough training. What the country needs is not more doctors, but more men in the medical profession who are able to form clear conceptions by scientific methods of the cause and cure of disease. We do not need more men in law and politics. We do need men who can see clearly and proclaim effectively the principles which underlie our legal and political relations. We do not need more clergymen; or if we do the need is an artificial one begotten of excessive sectarianism. We are terribly in need of men to whom the laws that govern spiritual life are clear and transparent, and who can make those laws forceful for the uplifting of mankind. We are not in serious need of numerical re-enforcements in the profession of teaching. We are sadly in need of scholars who have carried their studies far on into the outer circles of human knowledge, and are willing to come back into the smaller circles and make the abstract and general terms which education deals with in these lower stages luminous with the light which comes from accurate special knowledge. As Emerson says, "He that will do anything well must come to it from a higher ground." Unless one has gone in his own study far beyond the point at which he undertakes to teach, no elaborateness of method, or outfit of pedagogical theories and devices will save his teaching from being dull and heavy and dry and dead.

It is the duty of the universities, and of the managers of professional schools, to make every effort to secure that broad basis of training and interest without which the professions degenerate into trades, and their practice becomes subject to rule of thumb.

The universities and the colleges need to respect each other's rights and to promote each other's interests. The college, or university of collegiate grade, which keeps half a dozen graduate students hanging about its grounds with inadequate facilities, irregular instruction, and uninspiring companions is doing a wrong both to the individuals it thus keeps away from the universities and to the universities from which they are kept. The college should do its proper work with all its might, using the whole time and strength of its force upon its undergraduate work; and then it should speed its departing graduates to the real universities. The universities in turn owe it to the colleges to make admission to the best opportunities for graduate and professional training conditional upon at least some elements of collegiate training.

Such are the institutions which the American people have developed for the expression of their social ideal of education. These are the means they have established for the distribution, to all who will receive it, of the intellectual riches of the world. Other systems may make better soldiers, better specialists, better functionaries in shorter time. There is no system in existence so perfectly adapted to the highest work of education—the development of symmetrical manhood and womanhood. Let us appreciate this system of education at its true worth. Let us not be blind to its faults and shortcomings. Let us be ever ready to welcome all improvements which will make it more efficient in its great and noble work. Let us, however, jealously guard it against all innovation that would destroy its symmetry, or maim any of its essential members, or divert it from its high spiritual calling to lower and more mercenary aims. It stands to-day at once the firm foundation and the crowning ornament of this great republic. No vocation can be more patriotic than that of serving in its ranks. No calling can be more holy than that of ministering in its name.

In all its several grades and departments this work is one. Whether it be the mother in the nursery who represents to her trusting child all wisdom and all goodness, or the university specialist who meets a few chosen students on a single narrow line once or twice a week; whether it be the primary teacher instilling knowledge through every opening pore of the child's intelligence, or the college professor kindling enthusiasm in his favorite department; whether it be the grammar school teacher giving to the great mass of working men and women the impression they will carry into the heat and turmoil of their laborious lives, or the academy principal molding the thought and purpose of those who are to be leaders of their fellows, all are colaborers in one great and glorious work, one of the greatest in which man or woman can engage: that of interpreting the infinite riches of the laws of nature and the boundless treasures of the thoughts of God to minds naturally formed and divinely fitted for their apprehension and enjoyment.

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II

ELEMENTARY GREEK AS A COLLEGE STUDY

The attempts at readjustment of the traditional liberal curriculum in the past decade have directed their main force against the position of Greek in that curriculum. The discussions, conducted largely on *a priori* grounds, while they have notably enlarged the prevailing view of the meaning, aim, and content of a liberal education, have not reached any practical solution. They have neither defined nor simplified the task of the schools; they have rather brought them confusion and helped increase their burden. The great stumbling-block in the way of our secondary education is not poor teachers nor bad methods, nor inadequate equipment, nor even school-committees, but it is the plethora of subjects. The secondary schools, as preparatory schools, teach too many things. Confusion of purpose and the lack of common understanding between school and college are largely responsible for this.

The discussions referred to, if they have as yet effected nothing else, have convinced us that a liberal education can no longer be absolutely characterized by the presence of particular studies, though they have not by any means convinced us that for educative purposes one study is as valuable as another. It can be no longer maintained, and is, in fact, I believe, no longer maintained by the mass of educational authorities, that the study of Greek is an essential element of a liberal education. That it affords, however, the means of the finest literary training, and holds and will continue to hold a positively unique and unrivaled position among those studies whose purpose it is to re-think and re-live the nobler products of the liberated human soul, is more assuredly guaranteed to-day than ever before.

The enlarged idea of a liberal education affects not only the subjects involved in it, but makes it applicable to a vastly wider circle of men. Men of more diverse conditions and purposes are now seeking it. There is an increasingly large number of cases in which Greek is unsuited to the need. To put it frankly, Greek is too good for some men, for some men even who deserve a liberal education. It is too good for the need. It is too fine a tool for the work in hand.

In response, now, to a general demand for a broadening of the liberal curriculum, alternatives for Greek have in different forms been admitted into the requirements of many colleges, as at Harvard since 1886, or—what would amount essentially to the same thing, if anything like equivalence were effected—courses have been established for admission to college in which Greek is replaced by a modern language. The general effect of these alternatives has been, and, so far as I know, with perhaps the exception of Harvard, still is, the lowering of the grade of requirement. The opportunity of avoiding Greek has unquestionably served, thus far, rather as a boon to scant scholarship than an emancipation to fettered aspirations. The taint which in consequence undeniably rests upon these substitute courses can be removed only when their standards are made equal to or even higher than those of the classical course. They can never compete fairly and frankly with the classical course until then, and what is more, not until then, can their real value be fairly tested. They are now a debased coinage. The old classical course still sets the recognized standard, and the new courses must be adjusted to it, and not it to the new courses.

The Greek question is therefore unavoidably associated with the general question of the standard of admission to college. Shall the pressure upon the school curriculum be relieved by continuing to push up this standard, and lengthening the preparatory course?

During that period of unalloyed admiration of the German system, from which, if I am not mistaken, we are now emerging, and as I believe, fortunately, this elevation of standard was the treatment almost universally recommended for improving our educational system and healing all our academic ills. According to the pedagogical dream of that period, our preparatory schools were to be made into German gymnasia by advancing the college requirements, and the veritable American university was to be created out of the college by treating the same with jack-screws from beneath, and with the elective system from above. In the application of this recipe Harvard led the way. It is now becoming apparent that Harvard has gone farther than she is likely to be followed. A large part of our present difficulties in co-ordination is due in fact to a dislodgement of functions which this elevation has caused. The recent appearance of a demand for a three years' baccalaureate course is indeed a confession, either that the advance of standard has gone too far, or that the dream of creating the university out of the undergraduate college is abandoned. The American equivalent for the German university courses is not to be created out of the American college; a certain part of that equivalent must be created above the college.

In spite of all that we may learn from the educational experience of other nations, we have now reached a point where we should make it clear to ourselves that we shall be obliged to find for our American educational problem a distinctively American solution. Among the terms of the problem must figure prominently the facts of existing institutions. The "small colleges" constitute a very stubborn fact. Most of them will resist rechristening either into academies or into universities. It must now be regarded as a settled fact that the German dualism of gymnasium and university is to be represented in America by the triad of academy, college, and graduate school.

There is a vast fund of loyalty and of goodly traditions—if not always of money—vested in the small colleges that insures their persistence, and with them, of the old A. B. course as intermediate between the school education and the special or technical education. These colleges are better equipped for supervising the education of boys between the ages of sixteen and twenty, than between nineteen and twenty-three, as they are being forced to do. The recent rapid development of graduate courses in American universities has, it furthermore seems, intervened to offset the pressure from beneath, and to help materially in finally arresting the upward tendency of the A. B. course.

The solution which our American problem is reaching is a practical rather than an ideal one, and is determined, as I have said, quite largely by the actual status and capability of existing institutions. The work of the school differentiates itself from that of the college rather in the methods of instruction and tutelage, than in the studies pursued.

It is furthermore not likely that the school and the college can fully succeed in accurately apportioning between themselves the parts of subjects to be taught. It cannot, for instance, be exacted of the schools that they shall teach the elements of all college subjects, nor can the colleges absolutely decline to teach the beginnings of all subjects which are taught in the schools. There are two considerations of weight in this connection: (1) The essential educational difference between advanced and elementary instruction in a given subject lies in the intellectual condition of the recipients of instruction. (2) The ideal of the *Einheitsschule*, whereby all pupils should follow the same preparatory course of study, is impossible of realization in our system. A differentiation must begin at best three years before the completion of the school course. It may, therefore, be regarded as incumbent upon the college to teach the beginnings of a college subject which is omitted in any one of the recognized courses of preparatory study. That is to say, so long as the elements of German are not required in every preparatory course, the college will be compelled to furnish introductory instruction in German—just as in Hebrew. There are, however, practical limitations in the application of this principle. Thus, there is no practical need for the teaching of elementary Latin in college. The elements of Latin are in the first place taught in all preparatory schools; and secondly, although the

Latin may profitably be included in every preparatory course, if it should not be, it is in the case of a preparation for a purely scientific or technical course, which would scarcely suggest the desire to begin this study after the pupil had entered college. That the case is different with Greek I shall attempt to show later.

The chief factors in the situation are, therefore, practically the following: (1) The length of the preparatory course and the average age of admission to college are not likely to be advanced beyond the point at present observed in the great mass of our New England and Middle States colleges; (2) the final and absolute division of labor between the school and the college cannot be found by assigning to the former the elements of the principal subjects taught in the latter; (3) the liberal or general college education of the future is not likely to regard the study of the Greek language as a *sine qua non;* (4) the practical necessities of existence in the preparatory schools require a limitation of the number of subjects taught, a discrimination between essentials and non-essentials, a strict formulation, and, as far as possible, a unifying of the courses of preparatory study; (5) the solution of our problem concerning the relation of the school and college curriculum is likely to be a purely American solution, determined by the facts of existing institutions and vested interests.

In the light of these conditions the inquiry naturally arises: May not the beginning of Greek be postponed until the college course, its place in the school curriculum being taken by one of the modern languages?

An argument in favor of this solution might make use of the following considerations:

1. The amount of Greek at present taught in the schools is a mere fragmentary beginning. The results from the same amount of time spent on a modern language would be much more complete and satisfactory.

2. The chief strength would be put upon Latin, and only one difficult language be learned at a time.

3. The study of Greek would be begun in maturer years, to

which the relatively recondite character of the study might be considered better adapted.

4. The learning of a modern language before Greek is thought by many to represent a more practical and, pedagogically, a more correct order.

5. Acquaintance with a modern language at this earlier point in the curriculum would be practically serviceable.

6. The colleges can furnish far better instruction in Greek, which is a strongly specialized subject, than can the schools.

7. The pupil's decision concerning the future direction of his studies can be deferred to a later period.

In spite of the important concessions made in my introductory discussion, the following considerations can be urged against a change:

1. The study of Greek is so closely related to that of Latin, both in matter and purpose, that they belong together. The introduction of a modern language is a move in the undesirable direction of dividing and scattering the curriculum, in place of giving it unity around a central stem.

2. A classical training is incomplete without Greek. Latin literature is essentially a Greek product. Greek is more complete in itself without Latin, than Latin without Greek.

3. If rightly taught, the two years' preparatory work in Greek, coming as it does after Latin has been well started, need not remain fragmentary in its results. The time should not be divided by the attempt to learn two distinct dialects, the Attic and the Homeric, but should be concentrated upon the effort to acquire a reading knowledge of standard Attic prose with the essentials of Attic grammar.

4. Any attempt to arrange the secondary courses of study must take serious account of the existing status and equipment of the schools. It is of no small importance for us, when we are adjusting the college requirements, to learn what the schools can teach and teach well. The number of schools in the State of New York taking the regents' examinations in Greek was in 1887, 87; in 1891, 159. Number in Latin, 1887, 205; 1891, 291. Percentage of increase: Greek 83 per cent.,

Latin 42 per cent. The number of papers sent to the office in 1891 was for the Greek 2.9 times as many as in 1887, for Latin 2.4 times as many. It is an undeniable fact that no American colleges have in the past few years enjoyed a more vigorous growth with more general signs of popular favor than Yale and Princeton, which have held rigidly to the old Greek requirement. The conditions in American education do not, to say the least, seem yet ripe for so violent a departure from the existing order as the discarding of Greek from the preparatory schools would be.

5. The question of the proper order for the learning of languages is one about which there is great disagreement. The argument has been conducted almost entirely on *a priori* grounds, and a settlement can be expected only on the basis of experience. A radical departure from existing standards in a great educational system should wait for more than *a priori* determinations.

In the meantime, however, and pending a settlement of current discussions, the following disposition of the whole language question in the preparatory scheme seems to me wise:

Let the preparation for the humanistic or literary courses of the college include two units of Latin and one each of either Greek, German, or French—the one unit of Latin to cover the grammar and Cæsar, the other Cicero, Vergil, and prose composition. Let the preparation for a scientific, *i. e.*, a strictly scientific, and not a so-called scientific or surrogate course, include two units of Latin and one each of French and German, or two units of German, and one each of Latin and French, the units of German and French to be determined on the basis of the Report of the Commission of Colleges in New England for 1889–90.

Let every college offer a course in elementary Greek extending through one year. With the greater maturity and the better linguistic training of the student, and with skillful leadership on the part of the teacher, it will be possible for the pupil to acquire in this time a good reading knowledge of simple Attic prose of the difficulty of Lysias, Xenophon, or Lucian.

The student who presented Latin and German at entrance may then easily make good his deficiency in Greek, and by doubling his Greek work in sophomore year,—as his advantage in a modern language will admit,—may be at the end of that year on even footing with the regular student in arts.

There is no more reason why a college should be ashamed to offer elementary Greek than elementary German, after it once admits to its doors students without Greek. For such students, elementary Greek is no longer a school study, but an advanced, recondite, or learned study as worthy of the college as elementary Sanskrit.

Since 1888 such a course in elementary Greek has been regularly and officially offered at Cornell University. For the year preceding (1887–88) it was given unofficially. The recent introduction of a similar course is reported from Tufts College. At Vassar the experiment has been tried for several years with marked success. Since the course has been given at Cornell it has been taken each year by from six to eleven students.

Different reasons have determined men in choosing it. Some came from schools where Greek was not taught, some had been forced by circumstances to an irregular or incomplete preparation in language. Some, either from a decision to enter the ministry or for some other reason, had determined late in their course to acquire a full classical education. Some wished to acquire merely the elements of the language as an aid in English studies or in the understanding of scientific nomenclature. Whatever their reasons they were always in earnest, and have generally accomplished in one year considerably more than the amount of the preparatory course. From one of the classes four are now classical teachers.

It must be clearly understood that this plan does not involve a trespass upon the territory of the preparatory schools. It does so now with more than the teaching of elementary German in the college. No one can take the course in elementary Greek who has not been admitted to full standing in the college in some one of the regular courses, *i. e.*, he will have presented for admission instead of Latin and Greek, probably Latin and French, or Latin and German.

The plan here outlined furnishes, I believe, a solution for many of our practical difficulties in mutual understanding. The colleges assume merely the burden of a one year's course in elementary Greek. Students coming from schools where Greek is not taught are not finally debarred thereby from pursuing that study in college. Others who may wish to defer their decision of the question to a later period in their education are allowed to do so. Some who may prefer to acquire a modern language before Greek, are allowed the opportunity without loss of advancement. The smaller schools which find it difficult to maintain instruction in two modern languages beside Greek and Latin, can prepare their students, for instance, in Latin and German, with the prospect that French or Greek, or both, can be commenced in the earlier years of college. But looked at as a whole, the most important advantage of the arrangement would be that it affords opportunity for an experimental settlement of questions for which deductive reasoning has failed to furnish a universally satisfactory solution. In view of the vested interests of the existing order, and the strong grounds which can be maintained for its existence, it would evidently be unwisely and violently abrupt to remove Greek from the preparatory schools, but under the working of this plan the question would, we believe, in the course of years, find its own natural and satisfactory solution.

The materials for a solution of the difficult problems involved in the co-ordinating of school and college, as well as in the whole subject of the order and content of our liberal education, are rapidly collecting and arranging themselves; the finally acceptable solution must be expected at the hand of experience and of disinterested wisdom, and not from theorist or propagandist.

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III

THE CATHOLICS AND THE PUBLIC SCHOOLS

THE SIGNIFICANCE OF "TOLERARI POTEST"

Few decisions of the Propaganda have ever attracted so much of the world's attention as the decree *Tolerari Potest.* There was far more at stake than the welfare of the two schools in the snug little towns of Faribault and Stillwater. The Catholic nations of Europe were intensely interested, and Americans of every denomination or of no religious belief rightly thought that for them the outcome would have practical value. The battle was a fierce one. The best talent of the two opposing parties was engaged in this intellectual combat. And if incidentally friendships were broken and feelings wounded and charity and justice blunted, the outcome, at all events for the United States, is decidedly fortunate.

The full value of the decree, *Tolerari Potest*, is not brought home by a rendering of it into English. The value of a phrase, whether theological or canonical, is not always acquired from a literal translation of the same. Take, for instance, the definition of virtue as given by our theologians. They say it is "a habit (*habitus*) perfecting man's intellectual nature for the purpose of doing good." The English word habit does not give the full meaning of the Latin word *habitus.* So also with the translation of the decision of the Propaganda regarding the Faribault and Stillwater schools. *Tolerari Potest* is one of the formulas used by the Sacred Congregation in answer to questions proposed in a certain specific form. The Congregation is frequently asked whether or not such and such is lawful; whether or not such and such can be tolerated. It is careful to answer the query proposed—no more and no less. It answers: *licet*, it is lawful; or *non licet*, it is not lawful. It answers: *tolerari potest*, it can be tolerated, or *tolerari non potest*, it cannot be tolerated. It is the canonical, not the classical meaning of the decision which is of value. That decision does not mean, "unrebuked," "unpunished" or "suffered as an evil." If ever a decision of a court were put beyond doubt as to its meaning, it ought to be the one under consideration. The *Civilta Cattolica*, the organ of the Jesuits in Italy, made a desperate effort to nullify the decision of the Propaganda. This effort induced the Archbishop of St. Paul to write to the Cardinal Prefect of the Propaganda so as to save the decision from being made useless or perhaps tortured into a condemnation. The St. Paul prelate interpreted it as meaning "fully allowed," and added, by way of explanation, that the decision completed the educational chart for the bishops of the United States. Archbishop Ireland's interpretation was not only accepted by Cardinal Ledochowski, but his Eminence almost went out of his way to declare that henceforth all attacks upon the Faribault plan must cease. Nothing could be more unequivocal than this. The decision is interpreted by the ecclesiastic most intimately concerned in the discussion, and the court which gave that decision declares his interpretation to be correct. The case was thoroughly understood in all its bearings, for Monseigneur Persico, the present secretary of the Propaganda, had in his diocese of Savannah, Ga., what is now known as the Faribault plan.

The decision is of great moment in the United States, for it puts Protestants and Catholics in a better position to minimize their differences, if not ultimately to come to an amicable working conclusion on the school question. In this decision, a principle is asserted, at least by implication. That principle is the acknowledgment of the right of the State in education. Although our leading theologians and canonists and philosophers have taught the right of the state to give secular education, still the endorsement of Rome was needed to silence the opposition and to neutralize the over-zealous efforts of those who were more Catholic than the Pope. There is sufficient room for the individual, the family, the state, and the Church to co-operate in education, and then there will not be too much knowledge nor enough culture in the world.

The Roman decision is an evidence that the Church and the state need not be in opposition on the school question, and that a conciliatory arrangement can be entered into. The right of the modern state to educate follows from its right to exist, and this right is intensified wherever universal suffrage obtains as in the United States. The office of the state in educational matters is even more than a right—it is a duty. The state is bound to promote the well-being of its subjects, and untaught citizens are an eye-sore and a menace to the community. The state must exercise its right, however, in such a way as not to infringe upon the rights of the parent, and in such a manner as not to encroach upon the conscientious principles of the individual. A man has a right to purchase a revolver to defend himself; but he has no right to discharge it indiscriminately to the proximate danger of the passers-by. Practical people admit that sufficient religious instruction cannot be given to the great majority of children at their homes and on Sundays in church. Those who are in earnest about religion, no matter to what denomination they belong, believe that some religious training should be given to children every day. It was a mistake to drive the Bible out of the public schools, but it would be a crime to violate the consciences of Catholic children with certain portions of King James's version which are opposed to Catholic theology. Intelligent men should have devised some other means of solving the difficulty. When people know precisely what they want, and what they cannot conscientiously surrender, the question of adjustment is not so hopeless. The Faribault plan promotes the rights of the children, gives the individual full scope, acknowledges in action the right and duty of the state, and does not refuse an opportunity to the Church to do its work.

It were midsummer madness to deny that among a large section of American citizens there is grave dissatisfaction with the present method of conducting our public schools. This dissatisfaction is not confined to Catholics. It extends to all who support private or denominational schools. Protestants who maintain private primary schools, build colleges and universities, thereby show that they are not satisfied with those furnished by the state as they are at present conducted. The present plan of public education causes friction, calls forth ill-will, and works injustice upon those who are forced to maintain two sets of schools. Dr. John Bascom, an ex-president of the University of Wisconsin, points out that there is a violation of religious liberty in our present public school system. He writes: "To compel a Catholic to support a free school against his convictions is a sin against religious liberty of the same order as to compel a citizen to aid in maintaining schools in which sectarian instruction is given." The secularists are the only people who have reason to be satisfied with the state system as it is conducted at present. But it must not be inferred that the malcontents are enemies of the state system of education. The archbishop of St. Paul will be accepted by everybody as a fair exponent of the position of those who, while not satisfied with the state school as it stands, are certainly not its enemies. The following extract, taken from an address delivered before the National Educational Association two years ago, shows that he and those for whom he speaks would perfect and not pull down the state schools:

"Free schools! Blessed indeed is the nation whose vales and hillsides they adorn, and blessed the generations upon whose souls are poured their treasures! No tax is more legitimate than that which is levied for the dispelling of mental darkness, and the building up within a nation's bosom of inteligent manhood. . . It were idle for me to praise the work of the state school of America in the imparting of secular instruction. We all confess its value. It is our pride, and our glory. The republic of the United States has solemnly affirmed its resolve that within its borders no clouds of ignorance shall settle upon the minds of the children of its people. To reach this result its generosity knows no limit. The free school of America—withered be the hand raised in sign of its destruction!"

All serious cause for complaint should be removed from a popular system of education. And if it cannot be entirely taken away, then it should be made as light as the circumstances permit. Concessions, where such can honorably be made, lead to conciliation, and conciliation to strength. The Faribault plan contains the germs of the final solution of the school question in the United States. It is sustained by a splendid public opinion in the town of Faribault itself. No clergymen of any denomination in that town are opposed to it; Faribault's three newspapers support it; the teachers in the school like it; the parents are pleased with the progress made by the pupils; the members of the school board are enthusiastic over the arrangement. A most intelligent member of the school board told the writer that the children made greater progress in secular branches during the past year than ever before in the same period. The very best of us do better when the world is looking on than when we work unobserved. There is equally trustworthy evidence that the children have made more progress in religious knowledge than is usual within one year. The reason is obvious. The pastor is not burdened with the task of collecting money to support the school, and the energies formerly devoted to finances are now given to the more congenial work of developing spirituality in the little ones. There are few problems which reasonable and honorable men cannot solve when brought face to face. The decision, *Tolerari Potest*, has given official sanction to a principle without which the solution of the school question in the United States were an utter impossibility.

JOHN CONWAY

NORTHWESTERN CHRONICLE,
ST. PAUL, MINN.

IV

PUBLIC SCHOOL PIONEERING IN NEW YORK AND MASSACHUSETTS

A REPLY TO A REPLY

Mr. George H. Martin read a paper before the Department of Superintendence of the National Educational Association, in 1891, on "Compulsory Education in Massachusetts," in which he attached a new or at least an unusual meaning to the term "compulsory education," and held that it was something which had resulted from an "evolutionary process," of which there had been six steps, viz., "Compulsory education, compulsory schools, compulsory certification of teachers, compulsory supervision, compulsory taxation, and compulsory attendance." Although it seemed odd that compulsory education should result from six steps, the first of which was compulsory education, still nothing would have been said about it if Mr. Martin had not insisted that "Massachusetts took each of these steps in advance of the other States—a little in advance of her sister States in New England, far in advance of all the others."

This led me to prepare an article for the EDUCATIONAL REVIEW[1] in which it was attempted to prove that "America is indebted to the Dutch rather than the English for the essential principles of the great free-school system of the country, and that in the several most important steps which have marked the establishment and development of that system, New York and not Massachusetts has led the way." Mr. Martin replied in the REVIEW for June last, and I am invited to rejoin to his second paper.

My friend has manifestly heard and heeded the advice of the lawyer to his student: "When the law is with you and the facts against you," said he, "dwell on the law and avoid the facts: when the facts are with you and the law against you make the most of the facts and skip the law: when both the law and the facts are against you, throw up all the dust and make all the noise you can." With a hard case on his hands, Mr. Martin applies the prescribed treatment with heroic energy and much skill.

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[1] April, 1892.

It is hardly surprising that he should introduce his article by a quotation from Washington Irving's *History of New York by Diedrich Knickerbocker*, as that novel is apparently the leading authority in Massachusetts on the history of New York. When he manifests irritation and makes a show of indignation, when he talks about courage "beyond his [my] convictions" and "the sweets of authority," he is only throwing up dust and making a noise. When he takes my incidental expression "the common people" to mean the lower of several classes of people, he is unreasonable. He might as well construe "the common schools" to mean the lowest of several grades of schools. When he quibbles about the term "professional supervision," he reveals the remoteness of the rear guard from the main column of the army. When he insists that a school supported in part by the rate-bill system is a public school in Massachusetts—as he does on page 43—and not such in New York—as he does on page 41—he is strangely inconsistent, and his inconsistencies are too close together. When he says that a common school system was established in New York in 1795 and abandoned in 1800, because in the former year the State commenced levying a State tax for encouraging and aiding common schools, and in the latter year discontinued that policy for a short season, it might with as much truth be said that Massachusetts has never had a common school system, for she never has levied a State tax for schools. When he says "a public school is a school established, supported, and controlled by the people acting in their political capacity, as a civil body politic," he constructs a definition which may fit the first Massachusetts schools, but not one which is accurate, for it does not go far enough. If the people, by majority vote, undertook to establish schools to promote political or sectarian ends, their acts would not be effectual, and if they were, such schools would not be "public schools" as we use the term. And for precisely that reason, among others, it is contended that the first Massachusetts schools were not public schools. When he shouts in his climax, "Massachusetts is willing to learn; she is willing to teach; but she is not willing to be misrepresented," it must be admitted that his assurances of willingness are both novel and gratifying. This discussion may possibly bear even unexpected fruits. But his apprehensions are groundless, for Massachusetts has a history so proud and so frequently repeated that misrepresentation to her injury is not possible. When he exclaims, "The people of New York have always shown a willingness to be governed: they began that way. The people of New England have as signally manifested a determination to govern themselves: they began that way," the court sees that he is becoming hysterical, and is forced to suggest that he must calm himself or he will hurt his cause and bring ridicule upon his client; and the opposing counsel smile audibly. *Isn't* it funny, this talk about leading the way in *compelling* this, that, and the other thing, in one breath, and this universal and violent objecting to be governed at all in the next?

Eliminating expressions of this character, which are not material to the issue, and it cannot be said with truth that there is much remaining of Mr. Martin's reply. The greater part of the remainder is devoted to the difficult task of proving that our common school system was derived from England, although England never had a common school system.

In my former paper I adduced the facts which it seems to me must abundantly prove to any mind open to the truth, that the essential principles of the free school system had their development in the Netherlands before the settlement of America, and that these principles had never had any recognition in England. The purpose of this was to point out how and why those principles had their first enunciation in America among the Dutch Colonists at New Amsterdam instead of among the English Colonists in Massachusetts. Mr. Martin's reply to this is ridicule of the quality and circumstances of the Dutch schools. Regardless of that, the vital principles were there; and, moreover, those schools seem to have borne fruit, for Mr. Motley says: "It was a land (1608) where every child went to school, where almost every individual inhabitant could read and write, where even the middle classes were proficient in mathematics and the classics, and could speak two or more modern languages, and where the whole nation with but few exceptions were producers of material or intellectual wealth." [2]

Since writing my article Harper Brothers have published a work in two volumes by Mr. Douglas Campbell, under the title, *The Puritan in England, Holland, and America*, which is a most scholarly and notable contribution to American history. Having no knowledge of Mr. Campbell's views at the time I was writing, it gives me much satisfaction and not a little pride to find my position so strongly sustained by so eminent a scholar, who has given to the subject the best work of his life. At the greatest pains and with the most conscientious fullness of detail, Mr. Campbell studies the origin and traces the growth of many of our distinguishing governmental institutions. He takes up the National Constitution, the checks upon the President in declaring war and peace and in appointing judges, the organization of the National Senate, our State Constitutions, religious toleration, freedom of the press, wide suffrage, written ballots, *free schools for girls and boys alike*, the independence of the judiciary, the absence of primogeniture, the recording of conveyances, public prosecutors, the rights of persons charged with crimes, etc., and conclusively shows that they could not have been derived from England, since nothing of the kind existed there at the time the American colonies were founded, nor for a long time thereafter. He shows that similar institutions did exist in the Netherlands, and slowly follows the channels through which they came to be incorporated with our national life.

If the necessity of continuing the discussion of the origin of the free public school idea were otherwise apparent, the appearance of this notable work would relieve me, for it must inevitably be accepted as the leading authority upon the subject. But regardless of what may be said upon that question, it is not the real issue with Mr. Martin, and no one knows it better than he. His magnifying and enlarging upon that remote and involved question is only to cloud the real issue. It ought not to succeed.

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[2] Motley, *History of the United Netherlands*, IV: 432.

Mr. Martin first asserted that the growth of the common school system in this country had been marked by six steps, and that these six steps had been taken by Massachusetts "slightly in advance of the other New England States and far in advance of all the rest." This was what provoked a challenge; it is the real issue. He supported his assertion by an array of words, in good form, but not by facts. He was confronted by innumerable facts, which prove the converse of his proposition. Many of these facts were of recent date. Where this was not so, he was cited to the authorities, and they were authorities which he could not question. All could be easily verified or overthrown. In reply, he occupies his space in an attempt to change the issue and in discussing matters which are very remote, very old, and only indirectly related to the subject. In but one instance does he charge me with an erroneous statement of fact, and that is not a material fact, and he quotes me incorrectly before he convicts me of inaccuracy. He says: "Mr. Draper says the schools were so little thought of that Governor Winthrop makes no mention of them in his journal. Strange that he should not have discovered this historic passage," and then he sets forth a well known quotation from Winthrop's journal concerning schools. The paragraph to which this refers was as follows: "There is nothing to indicate that the starting of the (Boston) Latin School was *at the time* considered a matter of consequence. Governor Winthrop's journal treats of everything which the leading man of the colony considered at all important—of many things which seem to us very unimportant, but it contains no reference to *this* school." It is submitted that this would be commonly understood to mean that the Winthrop diary made no mention, at or near the time, of the fact of the organization of a Latin School in Boston. That statement is entirely accurate. The passage is not susceptible of the construction put upon it. It suggests a problem in mathematics. If Mr. Martin construes so clear a statement of so simple a fact, within thirty days after it is written, as loosely as this, how much allowance must be made for the construction which he places upon the facts and utterances of two hundred years ago?

But let us come right to the heart of the question. The issue is whether Massachusetts was the first to make education compulsory, schools compulsory, the certification of teachers compulsory, supervision compulsory, school taxation compulsory, and attendance compulsory. This depends not upon assertions, but upon facts. Mr. Martin has written two papers upon the subject. His assertions have been denied and he has been challenged to point out the facts which sustained them. He occupies space with words that are foreign to the real inquiry, and then says that "space will allow but few citations." How fortunate! His mind is directed to innumerable facts which overthrow his contention. These facts are of comparatively recent date, and may be easily investigated. If they are true his case is gone. He is an able man; he has ample time; he is full of resources and all the books are at his hand. Yet he is unable to say aught against them.

He is told that "In the Plymouth Colony there was *no school of any character for fifty-two years after the settlement; that the town had increased to twelve villages before any school was started, and the school then started was not an elementary school, but a Latin school.* He is cited to the passages in the original Plymouth records which show it. He says not a word in reply. He is shown that New Amsterdam, although not so strong in people or resources as Plymouth, had a dozen schools within this period, and that among them was a public school open to all children, supported by public moneys, and taught by an official schoolmaster. His only answer is ridicule for one of the public schoolmasters for being poor, as it incidentally appears that he supplemented his meager salary by other employments. He is pointed to innumerable facts which show that the early Massachusetts schools were sectarian schools, only for the attainment of a religious and denominational end. He ignores these facts.

He is cited to Winsor's *History of Boston* and the *Proceedings* of the Massachusetts Historical Society in proof of the fact that girls were not admitted into the schools of Boston until 1789, and were not received for full hours until 1828. This is a hard fact; the statement could not stand a minute if untrue. He does not deny it. He throws dust in the air by asserting that a "hamlet on Cape Ann," in 1723, voted a tax for "a free school which is for all sexes," and with a show of exultation exclaims, "these people were not enunciating doctrine, they were living it." Well, no citations are given, and I am not very familiar with Cape Ann. Moreover, Cape Ann is not in dispute. It is quite possible that in a hundred years a village somewhere had made some show of advance. That would not be too much to expect. But how about *Boston?* Here was the chief town, at that time with twenty thousand inhabitants, and not a school with a girl in it. They were *neither* enunciating doctrine nor living it.

Mr. Martin claims that Massachusetts was the first to adopt "compulsory certification of teachers." He offers no proof. He is told that teachers are both licensed and employed by the same authority in his State, that this authority is not a professional authority, that this is not the "certification of teachers" as the term is now understood throughout this country, and that therefore there is not, and never has been, any "certification of teachers," compulsory or otherwise, in his State. He says nothing further on the subject.

Likewise he claims for Massachusets the honor of introducing the "compulsory supervision" of schools. He is told that the term "supervision" has come to have a well-known technical meaning throughout the country; that it does not refer to the general charge of the schools by trustees or committees, but to special care by professional experts or superintendents. Even taking his view of what constitutes supervision, he is shown that trustees were provided for in every town in New York in 1812 and not in Massachusetts until 1826. But there is a difference of very much greater weight. For over eighty years the law of New York has provided for the paid professional supervision of every foot of her territory. It is true that her county commissioners are elected at popular elections, and that some of them lack in fitness; but it is also true that four-fifths of them come to the commissionership from the teacher's desk and are well qualified for their duty and zealous in its discharge. In addition to this, there is not a city in the State, and not a village of five thousand inhabitants, that has not a special superintendent who is a professional teacher. His time must be exclusively devoted to supervision, and he is in large part paid from the State treasury. The State Department of Public Instruction, with ample supervisory anthority, was created in New York in 1812: the State Board of Education, with authority to gather statistics and give out information, was not established in Massachusetts until 1837.

There is no State supervision of the schools in Massachusetts, because in its view that would be an interference with the high prerogatives of the towns. Local supervision is wholly voluntary. In the rural districts there is no supervision whatever. Town committeemen (butchers, bakers, and candlestick makers) are allowed a per diem compensation for visiting schools: if a superintendent is employed, this is cut off! It is to the interest of the persons who are in position to control the situation to prevent professional supervision. No provision was made for superintendents in cities until 1860.

Then, too, the whole system is voluntary. Most of the larger villages and some of the cities are without superintendents. I happen to have at hand the report, dated December 21, 1891, of Dr. William A. Mowry, as superintendent of schools of the city of Salem, Mass. It is a city of thirty thousand inhabitants and it may be recalled that it had something of an early history. Dr. Mowry commences by saying, "I find by the file of reports that the office of superintendent of public schools was established in 1866. The first superintendent was Jonathan Kimball, who held the office six years. The next incumbent was Mr. Augustus D. Small, who served the city for eight years. *There was then a vacancy for ten years (1880 to 1890).* The office was re-established by you [the School Committee] last spring." What becomes of compulsory school supervision in Massachusetts?

As to "compulsory taxation," Mr. Martin was pointed to the fact that his State raises no tax for general school purposes and that it compels no town to do so—that towns are only empowered to raise such sums "as they judge necessary." He was shown on the other hand that New York commenced raising a State School tax in 1795 and required towns to raise as much more; that this policy has been upheld ever since; that she started her permanent State School fund in 1805; that of the twenty millions expended in the State last year for schools, four millions were raised in the State tax levy and distributed on the principle that all the property of the people must contribute to educate all the children of the people; that upon this principle New York City gave nearly a million of dollars more than it received, and that this went to help the rural districts. Yet he has no word to say in support of his original proposition, nor yet any word in criticism of the statements which entirely overthrow his claims.

Mr. Martin makes one point which he would be entitled to make if it was in issue, and of which he may well be proud in any event. That is the early abolition of the rate bill in Massachusetts. It was of course an important step in the complete evolution of the common school system; but when he suggests that there were no common schools so long as they were in part supported upon that plan, he is only "making a noise."

That Mr. Martin should advance such claims as he did in his Philadelphia paper, is not surprising only because it is not unusual. It is the habit of Massachusetts to claim everything in sight educationally. The habit has fed and fattened upon the fact that no one has felt disposed to contest such claims, no matter how extravagant they might be. That Mr. Martin fails, under the light of investigation, to sustain his claim, as to the "six steps" which he laid down as the landmarks of the development of the common school system, is not his fault. He has covered his retreat and cared for his baggage as well as anyone could, indeed better than most men could. In fact, it is surprising that artistic treatment could make so much out of such a dearth of material.

Regardless of popular conceptions, the work of fervid orators and alleged historians, nothing becomes clearer to the mind of the investigator than that the common school idea was not of English origin, and that Massachusetts, which was exclusively of English origin, was slow in taking the steps which lead to its complete development. At least three things have occasioned this slow progress:

First, Massachusetts inherited the educational plan and policy of the mother country, which was to educate the few but keep the masses in ignorance for fear they would learn their rights and demand them.

Second, Massachusetts was settled for religious purposes and became a religious State. She had a state Church and the Church dominated the State. Such schools as there were, were subordinate to the Church, and were established to feed and support the Church. There can be no common schools where there is not absolute religious toleration. It is the essence and life-blood of the common school system. It is absurd to talk about common schools maintained by a "civil body politic" dominated by a state Church, which made civil rights depend upon membership in that Church, which inflicted fines and imprisonment for failure to attend its services, and which banished, whipped, and hanged any who opposed this plan of civil government or proposed to worship God in another way. This condition of things not only obtained in Massachusetts, but it continued, in all its vigor, for full a hundred years.

Indeed for more than two hundred years did that colony and State, true to its English parentage and traditions, carry on the contest against the freedom of religious opinion and the independence of the Church. Three decades of the nineteenth century had waxed and waned before she wrote the disestablishment of the Church and a guarantee of religious freedom in her constitution. All of her sister States, in and out of New England, had preceded her in taking this great step. New York, on the other hand, had inherited an entirely different system. She never knew a state Church, she was never even tinctured with religious intolerance, and is entitled to the honor of being the first organized government of the world to write in her constitution the sacred pledge of absolute religious freedom. In which soil might the underlying principles of the common school system be expected to find the more ready and stronger support?

Third, the town-meeting fetich. Local self-government is well, so long as it governs well and accomplishes the necessary results. General self-government is just as well, so far as it may be necessary to accomplish results. The doctrine that the public schools are to be left exclusively to the support and management of town meetings, regardless of local circumstances, when towns have no authority not delegated by the State; that the State, which alone can exercise sovereign authority upon matters relating to education, shall not exercise its authority, because that would be an interference with the alleged prerogatives of towns, is a doctrine which must necessarily impede the general administration and retard, if not prevent, the complete and healthful development of the public schools. In a State where all alike participate in forming the State government which alone can exercise authority upon most matters of public concern, Boston and Springfield should give of their wealth to the support of schools in the farming districts. But it is not so important that the State shall collect money to help the weaker sections, as that it shall make sure that every section provides suitable school buildings, employs none but qualified teachers, and uses the best methods of work which have been devised anywhere. Universal experience has shown that this authoritative oversight, this leadership by the only agency of government which has the right of leadership and the power to accomplish things, is vital to general educational activity and the uniform efficiency of the public schools.

It ought to be, and probably is, surplusage to say that the writer of this article has only admiration for the dominant qualities of the men and women who first settled Massachusetts, and that he is profoundly impressed with the magnificent part which that commonwealth has had in the development of our country. He sees in the very beginnings of that State that lofty and heroic *character* which has at all times been manifest among her people, and which has made her what she has been and is, and which has led and enabled her to exert the influence which she has and does. This feeling, common to all patriotic Americans, is intensified in his case by the ties of blood, for his ancestors were residents of Roxbury while John Winthrop was governor, and now lie buried within the corporate limits of the City of Boston. Of all that rightfully belongs to that age and that people, he is as jealous as anyone can be. If any need or desire to be told what it is that belongs to that people, he would be very glad on proper occasion to undertake the task. But he regrets the blind infatuation which, to the disparagement and wrong of others, ascribes to those early settlers works of great national importance utterly inconsistent with the dense superstition and the misguided, even bloody, religious intolerance which are known to have dominated their lives. And no less does he regret the supreme self-satisfaction which leads its possessor to lose position in the army of progress without knowing it, and prevents him from learning that he doesn't know it.

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V

REFORM IN THE GRAMMAR SCHOOLS

AN EXPERIMENT AT CAMBRIDGE, MASS.

Unthinking persons who look upon education in the United States suppose that the profession of teaching is much like other professions; that certain standards are set, a certain professional spirit maintained, by the body of teachers, just as it is maintained by the body of physicians or of lawyers, and, especially, that the methods of teaching and the choice of subjects are in general determined by the teachers. A brief experience upon the Cambridge School Board has convinced the writer that this view is mistaken. There are two parts of the educational machinery; the first relates to the selection of teachers, the second to the subject-matter of education, the choice of studies and of text-books, the preparation of courses of study, and the fixing of tests of proficiency. In the first of these departments the teachers have little influence, except in a very few professional schools, particularly those of medicine. Teachers usually have no voice in the selection of their fellows; the standards for admission into the profession are set and administered by persons who have often never been teachers and sometimes know very little of teaching. The school boards, and the trustees of secondary schools and colleges, hold the keys to the gates which open to the teacher's career.

It might be supposed that at least in the technical matters of curriculum and division of the time of pupils, the teachers would have sway. So it is in many of the institutions of higher learning; college faculties and the teaching force of endowed schools settle their own problems. This is not the case with the public schools. If an analysis be made of the distribution of powers in the educational commonwealth, the most influential persons are the school superintendents: they are not always secure of their tenure, but they can usually carry through, immediately or gradually, any scheme of reform which does not involve the expenditure of more money, and which can be carried out with the teachers whom they are allowed to employ. Perhaps the most encouraging thing in the recent movement for the improvement of grammar school education is the interest taken by the best and most active superintendents throughout the country.

Next in point of power come the school boards. In some of the large cities these are political machines; in Cleveland the board was so bad that by State enactment a new organization has been brought about in which the superintendent is made almost autocratic: but in many cities, and in most smaller places, the school board is controlled by well-meaning and intelligent men. In every board, good or bad, are some members well acquainted with the schools and eager to improve them. It is in the power of school boards to force reforms upon unwilling superintendents, but not to carry out any reform without the aid of the teachers.

The third moving force in the public schools is the "educators." These are sometimes men who have spent their lives in public school work, sometimes private individuals, sometimes the principals of great secondary schools, or the presidents of colleges. They have better opportunities than most superintendents and members of boards of education to observe the workings of American education in all parts of the country and to compare them with foreign schools of the same grade. It is their mission to arouse the public to the need of reform.

The fourth source of educational energy is in the public at large. In the Northern and Western States there is little difficulty in raising money for good schools, and people are sincerely disappointed if they find their children going on year after year with little progress. If the public can once be convinced that the expenditure of time and money on the public schools ought to produce a greater result, then reform can be brought about; but the details will always be settled primarily by the superintendents and in a less degree by the school boards.

Fifth and last come the teachers, who are in the unfortunate position of exercising great responsibility without much opportunity to make their preferences felt. So far from constituting the moving force of the schools, they are helpless links in an endless educational chain, picking up one batch of children after another and carrying them in a direction which they often do not approve. So far from the teachers forming a profession they are more like the employees of a great railroad. They have not built it, they do not control it; they may manage their train, but that train moves at a prescribed pace over a prescribed route, carrying a prescribed number of little passengers in each car.

In Cambridge, as elsewhere, we must reckon with all these forces. The conditions are probably more favorable to a reform in public school education than in many other cities. The number of school children is now between eleven and twelve thousand out of a total population of about seventy-five thousand; of these children not far from six thousand are in the grammar schools; for the six thousand pupils there are about one hundred and thirty teachers. The school buildings are good, though by no means equal to those of many Western cities; most of them have but twelve rooms. The average expenditure per pupil throughout the schools is $18.72 for salaries, and about $5.00 a year for other expenses, including free text-books and supplies furnished by the city at a cost of about $1.20 a year for each pupil. The supervision is less elaborate than in many cities; up to a few months ago one superintendent without assistance performed the whole duty. All the elements of school government have been unusually well disposed toward making some change in the grammar schools. The superintendent, Mr. Francis Cogswell, himself once a principal in one of the grammar schools of the city, has long been convinced that the schools are spending too much time and accomplishing too little. The school board acts entirely without reference to political parties, and although a series of accidents has brought in a large number of new members during the last two years, they have been members willing to spend the necessary time to acquaint themselves with the needs of the schools. The element of warning and good counsel has been especially well represented in Cambridge. The officers of several teachers' associations are found among the Cambridge teachers; and President Eliot of Harvard University has freely raised his voice in criticism of the grammar school system in general and of the Cambridge grammar schools as an illustration of that system. It is difficult to say how far the public at large has been interested in the proposed changes; there has certainly been no protest. The teachers, as soon as they understood that no change would be made without their co-operation, and without their having an opportunity to discuss the details and to suggest amendments, have taken a most gratifying interest in the whole matter.

As soon as the newly constituted school committee was organized in January, 1892, a motion was made for the appointment of a special subcommittee to examine into the whole question of the time and subject-matter of the grammar school curriculum. The committee embraced two of the most experienced and conservative members of the board besides some younger and more impulsive spirits. It adopted the plan of holding a kind of invitation meeting. Thus, into one session were introduced superintendents and teachers from those neighboring cities in which new methods and new subjects had been introduced. At another time the masters of the grammar schools were invited to present their views with regard to shortening the grammar school course. Again, a delegation of teachers was called in to meet several experts in the new subjects which it was proposed to introduce; and all the members of the school board were at one time or another invited to sit with the committee and to take part in its deliberations. The purpose was that the committee might clearly understand the difficulties in the way of reform, and might put itself so far as possible in the place of those by whom new methods were to be carried out. Most of the objections were thus obviated by changes in the scheme, or at least had been considered, before report was made. The result of the committee's labors, therefore, met with gratifying approval, and their recommendations were adopted, with a few verbal changes, precisely as they were made.

It was not difficult for the committee to make up their minds as to what ought to be accomplished in a grammar school education. Children go to school less to learn than to learn how; less to acquire a stock of ideas than to put ideas together. School training is very like gymnasium training. People do not raise weights for the sake of driving clocks with them, but in order that they may raise heavier weights hereafter. Throughout American education too much stress has been laid upon acquisition, and too little on the development of power. What the Cambridge school board desires is to make out of its boys and girls practical, sensible men and women able to meet and decide the questions which come to them. But we have two very distinct classes of pupils in the grammar schools: children who do not expect to go beyond the grammar schools and children on their way to college. Of course the schools, the academies, high schools, colleges, and universities are all engaged in different branches of the same pursuit; of course they must work together. Cambridge makes careful and very expensive provision for the preparation of boys and girls for college. Should the city go below its Latin School and make any sort of special provision for future college students in the grammar schools? In the minds of the committee it has seemed more important to organize as good a course as possible for those who stop at the end of the grammar schools. It seemed likely that an improved course would also carry children farther on the road toward higher education; but the motive has been the desire to furnish the best education possible to those who will have no other education; to make the people's schools more popular because more effective, and to carry more children to the end of the grammar school course.

Two problems now presented themselves which seemed to contradict each other. The experience of other cities and of other countries seemed to show that the Cambridge grammar school course is too long. On the other hand, the schools have been urged in the last three or four years to cover more ground. To shorten the course seemed possible: to increase it seemed possible; could it both be shortened and increased? A few weeks ago a young lady who was taking a civil service examination in Cambridge, looking forward to a position under the city government, made the following written statement: "When a child I went to a primary school in Cambridge. As there were four teachers and four rooms, I was four years in passing through that school." It is literally true that, although the primary course requires but three years, every child who went through that particular school was obliged to take an extra year because it was more convenient than to break the four rooms up into three grades. Of late years such stifling applications of red tape have not been permitted; nevertheless, until a few years ago it was not possible for any child, however quick, to finish a grammar school course in less than six years, although in Western cities the same ground is commonly covered in five years. Experience has shown that six is by no means a magic number; eighteen per cent. of our grammar school pupils spend at least seven years on the way. Some years ago the school board sought to remedy this artificial system by authorizing masters to advance pupils by a process of "skipping." A bright child might thus be carried from the fourth direct into the second grade, leaving out the third grade; or, more commonly, small classes of "skippers" have been formed to do the work of three years in two. About thirty per cent. of the grammar school graduates have taken advantage of this system, and about five per cent., have "skipped" twice. The result has been a practical variation of the course from four to seven years, according to the ability of the pupil. By an easy amplification of this principle it seemed possible to make the same allowance for individuals, but to make the course more regular and to avoid the gaps left by the "skippers." This has been accomplished by a system devised by Mr. Cogswell, and now, it is believed, about to be put into effect for the first time. Two grammar school courses are to be arranged side by side, one of them to require six years and the other four; but each of these courses is to be subdivided into two periods or forms. The combination of the lower quick-moving form and the upper quick-moving form makes a four years' course. The combination of the lower quick-moving and the upper slow-moving, or *vice versa*, makes a five years' course. The combination of the two halves of the slow-moving division makes a six years' course. Thus, without reorganizing the schools, it is possible to make every reasonable allowance for the abilities and opportunities of children. A child who loses a year from sickness may make it up by going into the quick-moving division; a child who proves too delicate for that work may be transferred to the slower division; and it is expected that such transfers will be made at any time according to the discretion of the masters.

Two objections may be suggested to this scheme. One is that it will be necessary for teachers to have two grades in one room. This is not by any means a misfortune. In the country district schools it is well known that the younger children often learn the lessons of the older from hearing their recitations. The influence of one grade of children upon the other in city schools is often equally decided and valuable. The other objection is that the system produces irregularity and confusion. One of the chief educational officers of the Commonwealth of Massachusetts has recently said: "Unity in these things is desirable, not only because unity in results requires it, but because the largest and truest progress can be secured in no other way. There should be unity also in the methods of teaching." So long as the Almighty does not make his children uniform, whether young or old, a system founded upon regularity must be evil. The attempt to compress children who have been the same number of years in school into the same grade, pursuing the same studies, is an attempt which must result in silting up the inferior minds and in blunting the superior. The ideal system of teaching would be that of the old district schools and of some of the best private schools—to form a class whenever half a dozen children could be found of about the same degree of advancement, and to keep several classes in one room, for the sake of the mutual influence of the children on each other.

Nevertheless, it must be admitted that the scheme requires more care, thought, and supervision than an ordinary graded school. There are two ways in which much of the difficulty may be avoided. One is the so-called departmental system, by which one teacher will teach but one or a few subjects; it has been adopted in the Workingman's School in New York and elsewhere, and one of the masters of the Cambridge Schools desires to make trial of it. While it seems likely that this system, which is familiar in the gymnasia in Germany, will eventually be introduced, the experience of the schools which have tried it in this country is rather adverse. What the children gain in efficiency of teaching they sometimes lose from a weakened discipline. A different step has, therefore, been taken in Cambridge, to provide for the difficulty of handling the carefully classified pupils. In the large buildings teachers without grade are to be appointed, who can make up small classes of children deficient in particular subjects and bring them forward more rapidly than would be possible in the ordinary schoolroom. By a temporary shifting of teachers this will make it possible to look out for individual needs and to relieve the schools of the children who have been blocking the way by staying longer than was good for them. One such teacher is already at work in Cambridge, and others are likely speedily to be appointed. An advantage of the system is that it practically increases the capacity of the buildings, and is thus a saving to the taxpayer.

A third objection to the whole system ought to be considered, because it may be made weighty in the minds of the public. It is that such variations are undemocratic. True democratic equality consists in the right of every man to make the most of his natural powers. No social system can be arranged which does not take cognizance of the difference of ability between man and man. The proposed system is distinctly in the interest of poor but bright children, who may be brought forward more rapidly and may be better trained if some account is taken of their special abilities. It is the duty of the public schools to promote equality; but they promote it best not by denying advantages to the more fortunate part of the community, but by giving them and pressing them upon the less fortunate.

The Cambridge schools are thus fully committed to a plan by which it is hoped that the average time in the grammar schools will be five years or less. It has not been the purpose to diminish the amount of study at present required, because experience has shown that it may be well performed in five or even four years. The next question which arises is whether the same amount of energy and study may not be made more interesting and more stimulating, by a rearrangement of work and the introduction of new subjects. The present curriculum of the Cambridge schools is simple, and, on the whole, reasonable. It is certainly not excessive in amount. Reading is kept up through all the six grades, authorized readers continuing through the eighth grade, and standard English authors being introduced in the seventh grade, half way through the course. Spelling continues through four of the six grades with a spelling book, besides the correction of written exercises from time to time. Formal grammar is taught with a text-book in all the grades. Geography runs throughout the course with poor text-books, and with more or less of the senseless superposition of maps upon artificial geometrical figures. Arithmetic continues throughout all the grades, but the more difficult and technical subjects are set aside to be added only at the discretion of the masters. This is, then, the work of the six years: reading, spelling, grammar, geography, and arithmetic, with the minor subjects of physiology, a little history, music, drawing, penmanship, and the use of the dictionary. Little is here included besides the essentials of an intelligent existence; pupils now leave the grammar schools able to read, to write, to cipher, to parse, with some notion of the earth's surface, and, it must be said, with considerable ability to express themselves cogently in the mother tongue. Instruction in the use of the English language has much improved in recent years, and receives great attention.

It is not apparent that any of these subjects can be omitted; it does seem, however, that a part of the six years might somehow be released. A great deal of time is spent in reviews. An eminent surgeon said of anatomy, that it was a subject which you could not know until you had learned and forgotten it seven times: possibly grammar masters have some such principle in mind. The chief purpose of the reviews has been, however, not to recall what had been learned by bright scholars, so much as to teach pupils what they ought to have learned in the grade below. In Cambridge, as throughout the country, those scholars who least respond to the teacher get most of her time. The four and six years' plan is likely to relieve the schools by separating out the scholars who really need review, so that the quicker division may go directly into new subjects. Then again, the committee became satisfied that a great deal of time had been spent to little purpose in getting classes ready for examinations, and the school board has voted that henceforth there shall be no stated examinations, and that promotions shall be made upon the record of the term work; these two reforms, the putting bright pupils ahead into the subjects which they are able to take up and the saving of unnecessary review preparatory to examination, will leave the schools more time than they have at present. Another saving is possible by simplifying the work, particularly in arithmetic; there is a tendency on the part of teachers to emphasize this subject by giving long, complicated, and numerous problems instead of more simple examples. The same saving result may be had by simplifying the study of language; it does not seem necessary that intelligent children should for five successive years be taking up the principles of grammar. Surely, what is necessary to remember may at last be learned; whatever training comes from such subjects may at last be had; and the pupils' minds may sometime be turned to fresher and more interesting topics.

When five years ago the suggestion was first thrown out that the grammar schools were teaching too little, it was met with incredulity, with denial and personal abuse. It has now been repeated, developed, and illustrated by so many eminent teachers, administrators, and heads of great systems of public education that the community accepts it, and even the teachers acknowledge it. In fact, the opposition to the proposed reform has sprung chiefly out of misapprehension; when the grammar school system was criticised, the grammar school teachers felt that they were attacked; whereas they, like the rest of the community, were sufferers from a system for which they could not be held responsible. The most important recommendation on the subject was that made November 6, 1891, by the Association of Colleges in New England. Although the members of that body were all engaged in college teaching, their recommendation does not appear to spring from any desire to make the grammar schools feeders for higher schools; they are interested in the public schools as citizens, and many of them as fathers of public school children. They recommend that algebra and geometry be introduced into the grammar schools. At present the Cambridge schools include in their mathematical studies mental and written arithmetic throughout the six grades, and bookkeeping. The bookkeeping has in most cases been of a very simple kind, and it has been thought wise to abandon the pretentious and undeserved title and to substitute the term "Simple personal and business accounts." What shall be done with the time so gained for the children by presenting the subject of arithmetic in a simpler manner, has been made on the whole the principal subject in the grammar schools, because of its practical applications, and of the excellent training to the mind resulting from its precision. Yet in the present study of arithmetic there has been, on the whole, little development of the reasoning powers; under poor teachers the rules have been learned and applied by rote. There are two other mathematical subjects in which training is the larger element. They are algebra and geometry. The processes of algebra are closely akin to those of arithmetic; hence, if a choice must be made it seems desirable to take geometry, because its point of view is different, and because the exactness of logical reasoning makes up for some of the loose habits of thought which children get in other subjects. Geometry, properly taught, is one of the most interesting of subjects, and it may readily be allied with drawing and with mensuration; the schools all teach in a more or less regular fashion the properties of geometrical forms, and the relation to each other of lines and angles. If this part of the school study is combined and organized and made to advance from year to year, it will lead up by the most natural steps to the study of simple geometrical problems. No subject is more likely than geometry to interest the great majority of children. In one of the towns near Boston in which that study has been introduced into the schools, the boys have developed an interesting practical application; they go about and offer to calculate the height of their neighbors' houses, by means of their simple instruments and formulæ. The Cambridge school board has therefore adopted the study of geometry as obligatory in the grammar schools. Some of the teachers hesitated on this point, and some of them preferred the teaching of algebra. The board has therefore authorized any master who chooses to introduce algebra also in the last year in connection with arithmetic.

Next come reading and language. Every well-educated man needs the knowledge of some language beside his own; in America there is not the same practical necessity for the use of modern languages as abroad. We have but two neighboring countries in which English is not used, Cuba and Mexico; and few Americans have any occasion to use Spanish. Still, nothing surpasses the study of foreign languages in effect upon one's own vocabulary and mode of speech; and no man who desires to use the thoughts of current writers on literary or technical subjects can get on without French and German. Hence it has been suggested that the study of some language should be introduced into the grammar schools, and the only convenient tongues are Latin, French, and German. Any one of these may be pursued with advantage by American children, as they are by boys and girls of the same age in foreign countries; while it may be no argument to say that because a subject is studied abroad it ought to be studied in America, we surely cannot admit that American children are less capable or develop less rapidly than those in foreign countries. If an American boy and a German boy were cast away upon the same desert island, the American would take care of himself and save his comrade's life; but if an American young man of twenty is put side by side with a German young man of twenty, he finds himself inferior in the power to deal with new problems in science, in logic, or in the workings of the human mind; whereas with his better start and surroundings he ought to excel. His greater experience in practical matters, in self-protection, in money-making, ought not to interfere with skill in the use of his reasoning powers. The difficulty in the introduction of languages is not that they are too hard for the pupil, but that they are too severe for the taxpayer. Three-quarters of the children in the Cambridge grammar schools could get a great deal of good out of any one of the three languages. About one-twentieth of them would be much aided in their preparation for college; every scholar who had a foreign language would understand the use of English better. The difficulty is that foreign languages are not so easily taught as spelling, arithmetic, and geography; good teachers in these branches are difficult to find for any institution; and if introduced on a large scale, languages require costly supervision. Hence it is much easier to introduce a new language into a town having one graded school than where there are a dozen large schools. No recommendation has therefore been made on this subject, but the committee have suggested important reforms in the teaching of English. In the first place, formal grammar lessons, including learning of parts of speech, and parsing, are to be confined henceforth to the last two-thirds of the grammar course. In the second place, set spelling lessons are to stop at the end of the first two-thirds of the grammar course. In the third place, and this is one of the most important reforms, in all grades extended extracts from standard English authors are to be read side by side with the authorized readers; and in the latter part of the course they are to supersede the readers. Many of the modern school readers are excellently selected, and have interesting matter of good literary flavor; but children, except in the last year of their course, have had almost no opportunity in school to become acquainted with the great English and American writers. Possibly the choppy school readers are responsible for the growing desire of Americans, in their reading, to descend from short books to short articles and thence to short paragraphs.

The next change suggested is in the teaching of geography. Political geography and history are henceforth to be treated together as branches of the same subject. Physical geography is to be expanded and to be grouped with science. The details of the new course have not yet been worked out, but they will include, as fast as the means of the board will allow, the use of maps, apparatus, and models. Children are to be taught to look on physical geography as a part of the development of the crust of the earth, then to connect with the contour of the earth's surface the movements of the winds, and finally to observe the effect of physical causes on the settlement and development of nations.

The last new subject to be introduced is physics. Here it has been much more difficult than in the other subjects to frame the right kind of course and to fit it into the grammar school system. The choice of the board has been between two systems: they may, as in many cities, teach children to notice flowers, trees, rocks, and stones, to count their fingers and toes and to compare them with the hoofs of horses and cattle, and then may call that science; on the other hand, they may choose some one branch of science and teach it in such a way as to give children their first ideas of scientific methods and scientific accuracy. After considering all possible subjects, the board has finally resolved to introduce experimental physics, but this recommendation is not to take effect for one year. The difficulties are serious, but not insurmountable. In the first place some part of each building must be set aside for a little laboratory, and most of the buildings are already well occupied; it is believed, however, that the corner of an assembly room, a lobby, or an unused cloakroom may be furnished with a few rough appliances sufficient for the purpose. The next difficulty is the lack of apparatus; it has been estimated that to fit up the rudest laboratory, so that it would be sufficient for the use of a grammar school, would cost from one hundred to two hundred dollars. Fortunately, however, Cambridge has a manual training school, the boys in which are sufficiently skilled to make most of the necessary apparatus, and the superintendent of that school has promised to help on the system by constructing the necessary pieces next year, at the cost of materials. The third difficulty is the lack of trained teachers, and it is to be met by providing special normal instruction in physics during the coming year. Of all the subjects proposed this is probably the most desirable, both for its training and for its practical applications. No subject goes so far in suggesting to children to look below the surface for the cause of things; and no study is more likely to be useful to boys and girls who are hereafter to use their hands and their heads in any kind of trade which calls for manual skill.

The four new subjects thus proposed are English literature, geometry, physical geography from a new standpoint, and physics. The Cambridge teachers are certainly equal to the average of their profession. Before appointment most of them have had a high school education, a normal school education, and an experience of one year, preferably in the Cambridge training school for teachers, which is a part of the school system. Yet not many except the masters are at present equal to teaching geometry, physics, or physical geography. Some special provision for training in these subjects would have been necessary at the public expense, and it is doubtful whether the scheme loaded down by such a necessity could have been accepted at this time. At this point, Harvard University most generously agreed to furnish, at its own expense, normal instruction for the Cambridge teachers in the three subjects named. It is a public-spirited act which shows that the corporation of the university understands how interdependent common school and college education are. The details have not yet been settled, but practical courses are to be arranged by professors who have a reputation as teachers and as experts in their subjects. The effort will not be made to go through with the teachers precisely the work which they are to repeat to their scholars. In each subject the instructor will attempt to train the teacher to understand the subject and to meet the difficulties which arise in schools. In arranging programmes, lists of experiments, etc., the schools will have the benefit of the judgment not only of these professors, but of the high school principals and teachers of mathematics and science.

It is apparent that the conditions for a reform in the grammar schools of Cambridge are unusually favorable. The city has been placed in the midst of a long discussion of the subject in which some of the grammar school teachers have been engaged. The superintendent has been unusually interested; the school committee have given an amount of time and consideration to the subject which could not be secured every year. The teachers are interested, and the university has simplified the whole problem by providing for the necessary special instruction of the teachers. Furthermore, it has not been attempted to make all the changes which have been suggested by the New England Association of Colleges and elsewhere. Algebra has not been made obligatory. No new language has been introduced, and but two sciences, physics and physical geography. Most cities could undertake these reforms without serious additional expense; but every school board must make up its mind that the saving of time does not mean that less money must be expended on the schools, but that a better education may be furnished for the same money. It is estimated that in Cambridge five hundred scholars are spending an unnecessary year, at a total cost of about nine thousand dollars; but under the new system most of those five hundred children would simply add another year to their present schooling. The result will be an incalculable advantage to the community, but not a lessening in the tax rate.

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VI

THE NEW EDITION OF JOWETT'S PLATO[1]

Plato was a many-sided man; he was not only a metaphysician, but also a literary artist. On every page of his works one may see indications of that love for poetry which inclined him in his early years to devote himself to the composition of tragedies. He always enjoyed a lively dramatic situation, and could not easily surrender one which presented itself, even if it were not needed for his argument. His aims and interests were so many that scholars are not agreed as to the chief aim of some of his most important dialogues. The *Gorgias* is said to treat of rhetoric, but it gives no rhetorical definitions or precepts; the author's real purpose seems to be rather to defend Socrates and himself against the charge of folly and unpatriotic conduct in not engaging in political life. This indefiniteness of aim is still more marked in the case of the *Phædo*, which is generally thought of as an argument intended to prove the immortality of the soul. But by what steps does Plato introduce this argument? The friends of Socrates meet at the prison on the morning of his last day of life, that they may pass this day with him, just as they have done all the others of his month of imprisonment. They have no special message or question or subject for conversation. As they enter he is just released from his chains. He rubs his leg where the fetter had been, and says, "How strange a thing this is that men call pleasure! How curiously related to what they call pain! The two will not come together, but if a man gains one of them he is pretty sure to get the other also. I had the pain from the chain, but now I have the pleasure of relief. If Æsop had thought of it, he would have made a fable to represent pleasure and pain as contending but bound together." The mention of Æsop reminds one of the company of Evenus, a poet who had asked a question with regard to Socrates' putting into verse some fables of Æsop. This leads to a message to Evenus, closing with the injunction to follow Socrates as soon as possible. This, in turn, raises the question why Evenus should desire to follow the dying man; and leads to the answer that the true lover of wisdom will recognize the fact that he cannot attain the object of his desires in this world, but only in the next. Then, for the first time, after fourteen or fifteen closely printed pages, the argument begins to show the probability of the soul's existence after death. The discussion could not be represented as less premeditated. Some scholars believe Plato's aim in the *Phædo* to have been to teach his doctrine of ideas, or his method of philosophical investigation; others, to give an account of his master's last days on earth, or to show how a good man should and might die; while the popular view of the dialogue is that it was intended to prove the immortality of the soul. No more complete literary contrast could be desired than that between Aristotle's discussion of the question whether virtue is natural or the result of teaching, in the second book of the *Nicomachean Ethics* and Plato's treatment of the same question in his *Meno.*

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[1] The Dialogues of Plato: Translated into English, with Analyses and Introductions, by B. Jowett. In five volumes. Third edition, Revised and corrected throughout, with Marginal Analyses and other Additions, and an Index of Subjects and Proper Names. [Macmillan & Co., New York and London, 1892. Price, $20.00.

Whatever scholar, then, as translator, is to interpret Plato to the general English-speaking public, must appreciate his author both as a literary artist and as a metaphysician, and must be a thorough master of the Greek language.

A translation of Plato is of special interest in this country, for the Plato-cult has flourished here as nowhere else. In no other land is the day of the "terrestrial descent of the soul of Plato" regularly and piously commemorated. Nowhere else have a company of thoughtful men and women met weekly for a series of years, for the study of Plato's thoughts and meditation upon them. Nowhere else has a journal like the *Platonist*, or *Bibliotheca Platonica* been devoted to studies of the great master and his successors, Proclus, Plotinus, and the rest of the Neo-Platonists, of whom the ordinary Greek scholar or student of philosophy generally knows little or nothing at first hand. Popular interest in Plato is shown also by the wide sale of the little volumes of an anonymous translation published by Charles Scribner's Sons.

The first edition of Jowett's translation of Plato, on its appearance in 1871, was recognized at once as a great achievement. Dr. Jowett was then regarded as the first Greek scholar in England. He had been Regius Professor of Greek at Oxford for more than fifteen years, and had been distinguished for his theological writings, which bore ample witness to his broad spirit. He had recently been made Master of Balliol College. The translation was in vigorous, idiomatic English, and if philologists sometimes grumblingly complained that it did not always show them Jowett's view of the grammatical construction of the Greek sentence, they less often asserted that the thought of the original was not reproduced in the translation.

The third edition, now before me in five stately volumes, bears out the statement of the title-page, that it is revised and corrected throughout. Few paragraphs have remained exactly as they were in the first edition. The translation has been made more accurate in its relation to the Greek, and yet more idiomatic and more forcible in its English. The revision of the translation may be appreciated best by the comparison of two brief passages in the two editions. And first, from the first book of the *Republic*, 336 B. The first edition of the translation reads as follows: "'What folly has possessed you, Socrates?' he said with a roar. 'Why do you drop down at one another's feet in this silly way? I say that if you want to know what justice really is, you should answer and not ask, and you shouldn't pride yourself in refuting others, but have your own answer; for there is many a one who can ask and cannot answer. And don't tell me that justice is duty or advantage or profit or gain or interest, for that sort of watery stuff won't do for me; I must and will have a precise answer.'

"I was panic-stricken at these words, and trembled at the very look of him; and I verily believe that if I had not caught his eye first I should have been deprived of utterance; but now, when I saw his fury rising, I had the presence of mind to keep my eye upon him, and this enabled me to reply to him."

In the revised edition of the translation this becomes: "He roared out to the whole company: 'What folly, Socrates, has taken possession of you all? And why, sillybillies, do you knock under to one another? I say that if you want really to know what justice is, you should not only ask but answer, and you should not seek honor to yourself from the refutation of an opponent, but have your own answer; for there is many a one who can ask and cannot answer. And now I will not have you say that justice is duty or advantage or profit or gain or interest, for this sort of nonsense will not do for me; I must have clearness and accuracy.'

"I was panic-stricken at his words, and could not look at him without trembling. Indeed, I believe that if I had not fixed my eye upon him, I should have been struck dumb; but when I saw his fury rising, I looked at him first, and was therefore able to reply to him."

The following is the latest form of the last sentence of the *Phædo:* "Such was the end, Echecrates, of our friend; concerning whom I may truly say, that of all the men of his time whom I have known, he was the wisest and justest and best." How much better this is than the first form: "Such was the end, Echecrates, of our friend, whom I may truly call the wisest, and justest, and best, of all the men whom I have ever known."

The new edition completely supersedes the old. The Introductions to the Dialogues have been much enlarged. Many paragraphs and sentences have been added. Dr. Jowett has evidently felt the inclination to add to what he had written, and yet appreciated the limits of the case, for the new matter is almost all in very concise form. These introductions contain all that is needed as the basis for an ordinary, good appreciation of Plato, and to most they will be more useful than the translation itself. The introduction to the *Republic* covers

231 pages, closely printed, giving an analysis of Plato's work, with helps toward the appreciation of it on the literary and philosophical sides, including a criticism of the views presented, and a discussion of More's *Utopia* and other schemes for a happy state. The introduction to the *Laws* is a trifle longer than that to the *Republic*. In general, about half of the matter in this edition is introduction and index. The index is one of the best parts of the work. This was entirely lacking in the first edition; the second edition had an index of about seventy-five pages; the index of the third edition covers 175 pages, and contains much that is interesting. Two of its pages are devoted to the subject of education.

Dr. Jowett appreciates the position of Plato historically, and does not attempt to gloss over any of the master's errors and fallacies. He does not think himself called to claim inerrancy for him. He often reproduces Plato's views and arguments in the language of modern discussion, and endeavors to draw out the great lessons which Plato teaches for all time. The following extract is characteristic (II. 301): "It is scarcely necessary to repeat that Plato is playing 'both sides of the game,' and that in criticising the characters of Gorgias and Polus we are not passing any judgment on historical individuals, but only attempting to analyze the 'dramatis personæ' as they were conceived by him. Neither is it necessary to enlarge upon the obvious fact that Plato is a dramatic writer, whose real opinions cannot always be assumed to be those which he puts into the mouth of Socrates, or any other speaker who appears to have the best of the argument; or to repeat the observation that he is a poet as well as a philosopher; or to remark that he is not to be tried by a modern standard, but interpreted with reference to his place in the history of thought and the opinion of his time."

Ten pages of the preface set forth the duties and difficulties of a translator as clearly as they have ever been stated.

That the translator has not always succeeded in following his own principles, and that oscitancy has, at rare intervals, overcome the scholar, is only a mark of our common humanity.

Every lover of Plato who has made himself familiar with the original, must expect to find occasionally that the translator has failed to catch and express the exact tone or trait which had seemed peculiarly delicate and beautiful. More rarely he will find what is an obvious slip. For example, near the beginning of the *Apology*, 20 B, Dr. Jowett translates a question of Socrates, "Is there anyone who understands *human and political virtue?*" Few, if any, untaught readers could guess that this means, "Is there anyone who is skilled in imparting the excellence which is proper to a man and a citizen?" On the first page of the *Apology* we read: "From me you shall hear the whole truth; not, however, delivered after their manner in a set oration duly ornamented with words and phrases. No, by Heaven! but I shall use the words and arguments which occur to me at the moment." In this translation a bit of balance of style is lost. In the second of the two sentences as well as in the first, Socrates is made to refer to the arrangement of his arguments as well as to the particular words which he is to use. In the *Gorgias*, 455 B, we read, "At every election he ought *to be chosen* who is most skilled," where the connection indicates that the meaning is, "The one who is most skilled should give the advice and *do the choosing*." The scene of the *Gorgias* is laid at the house of Callicles, by the translator; but President Woolsey, in his excellent edition of that dialogue, half a century ago, showed clearly that the dialogue was not held at the house of Callicles, but probably in some public room connected with one of the palæstræ of Athens.

These may serve as illustrations of trifles which have escaped the translator's notice. Others might be enumerated, but the discussion of many would require considerable space.

In the *Republic*, 365 C, "Since then, as *philosophers* prove, appearance tyrannizes over truth," Plato means not *philosophers* but *poets*, as the dialect and meter of the quotation prove; and he is simply using οἱ σοφοί (*the wise*) in the sense in which it is regularly used by Pindar.

But while the Platonic scholar will be dissatisfied with some of the details of this translation, and will still cling to the original Greek, few men in our country have such perfect acquaintance with the dialogues that they cannot learn much from this work. The ordinary scholar and reader may be sure that we have no better translation of any literary monument of classical antiquity, and that the introductions offer the mature judgments of a scholar whose privilege it has been to give many years to the study of the works of one of the noblest and greatest men and philosophers of the world's history.

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VII

THE TEACHING OF MATHEMATICS, (I)

ELEMENTARY SUBJECTS

If all our institutions of learning, from the primary school to the college, were asked what is the hardest road that the learner has to travel, the answer would everywhere be, that to mathematics. Poor Marjorie Flemming struck a sympathetic cord in the breasts of every generation since her time when she declared that "the multiplication table is a horrible and wretched plague; you cannot conceive it; it is what nature itself cannot endure." What the child feels in learning the multiplication table, the older pupil feels when he comes to proportion or algebra, and the college student when he first attacks analytic geometry or calculus. It must also be admitted that, in the typical case, the results of teaching are as unsatisfactory to the teacher as the subject is repulsive to the learner. The great mass of pupils in our public schools go through a series of arithmetics, one after the other, and six months after the last one is finished, few could pass an examination in any of its difficult parts. The same rule holds in the higher branches. Few, indeed, are the college students of mathematics who, a year after they had laid aside their books, could reproduce any important part of the subjects they have spent so much time in trying to master.

My rather limited observation has led me to suspect that we, in this country, find the difficulties in question even greater than do Europeans. I have found young men from abroad to be generally more expert in the applications of arithmetic and elementary mathematics than young men of corresponding talents and tastes educated among us. While the latter might have equal capacity in the mastering of the subject in the abstract, they do not seem to have learned it in the practical way in which it is taught abroad. I may possibly be mistaken in the general impression, derived in many ways, that the system of education pursued in Europe, especially in Germany, looks more to interesting the pupils, and developing their knowledge on subjects with which they are familiar than our own does. But if I am not, the question arises whether we cannot, even in such subjects as arithmetic and algebra, do more to let the pupil see their relation to everyday matters.

The instruction in advanced mathematics is so different from that in the elements of the subject, that I shall divide what I have to say into two papers, one treating of elementary, and the other of advanced, subjects. The keynote of what I have to say about elementary teaching, especially that of arithmetic, is that we should devote more attention to embodying mathematical ideas in a concrete form. If we look carefully into the difficulties which the beginner meets with, we find that they can be summed up in the single statement that he has no clear conception of the real significance of the subject which he is working upon. His figures and algebraic symbols do not represent to his mind anything which he can see or feel; the operations upon them are not even representative of any operations with which he is otherwise familiar. So long as this state of things continues, all his work consists of mere formal processes, which have nothing to correspond to them in the world of sense. Everyone who has studied the minds of boys or men, of different orders of intelligence, must have noticed how readily and correctly persons of the lower orders will reason about concrete things, even when they could not comprehend any abstract statement. I remember once quoting to a resident of South Africa the remark of an American philosopher upon the low condition of some African races, as exhibited in their inability even to count beyond half a dozen. "There is not one of them," he replied, "who has ever been in contact with civilization, on whom you could pass the wrong change for a shilling."

It is, I believe, very generally conceded that all mathematical conceptions are, in the first place, acquired through the senses. By no possibility could the conception of a straight line be conveyed to a person who has never seen anything to suggest it, nor can the idea of relations in space be acquired except by first observing them through the senses of touch and sight. It may be true that a single observation will in each case be sufficient to give the necessary conception, and it is hence concluded that when the pupil has once made this simple observation, he has acquired the necessary ideas of number and space, and nothing more is necessary to enable him to apply the conceptions. Indeed, some go so far as to maintain that it is better not to call in the aid of the senses in teaching such a subject as algebra, but to aim at its presentation in the same abstract way that the professional mathematician employs when he represents curves and surfaces by algebraic symbols. Even those who would not overtly maintain this view may practically act in accordance with it, by teaching arithmetic and other elementary subjects simply as operations upon abstract numbers, or the solution of imagined problems.

But conceding that a single experience will suffice for the conception, it does not follow that it will suffice to enable the mind to apply it in reasoning. To know what a thing is may be one thing, and to handle it quite a different thing. I therefore suggest the question whether the teaching of elementary mathematics may not be greatly facilitated by the study of mathematical relations among sensible objects. A practice has come into vogue among professional mathematicians which illustrates the difficulty I have mentioned, and the way in which it may be avoided. The relations among imaginary quantities in algebra are so much more complex than those among ordinary real quantities that they evade the direct comprehension of even the most expert mathematician. The result was that no progress was made in the study of a subject now at the basis of a large part of mathematics, until Gauss and Cauchy conceived the happy idea of representing the two elements which enter into an imaginary algebraic quantity by the position of a point on a plane. The motion of the point embodied the idea of the variation of the quantity, and the study of the subject was thus reduced to the study of the motion of points; an abstraction was replaced by a concrete representation. The result was that, in the conception of writers on the subject, position speedily took the place of quantity; the word "point" replaced the word "value," and in this way an extended branch of mathematics was constructed, which would not have been possible had the abstract variable of algebra not been replaced by the moving point of geometry. If the greatest mathematical minds feel such an aid to be necessary to their work, why should not a corresponding aid be offered to the farmer's boy, who is engaged, year after year, in struggling with numbers, of whose relations to sensible objects he can have no clear conception?

I propose to do this by showing him an arithmetic and geometry of sensible objects.

One thing I have found by actual trial: a class of pupils who have begun to weary with their arithmetical studies can be greatly enlivened and interested by a few such exercises as I am about to suggest. They can be extended and varied indefinitely, as the experience and inventive power of the teacher may suggest. It must not be forgotten that their object is not to teach the pupil anything, in the ordinary sense, but only to make the operations of arithmetic a work of the senses. I therefore give only a few examples of the various kinds of such exercises.

Sensible Addition and Subtraction—Following the instructor at the blackboard, draw two lines on your slate. Now add the shorter to the longer (by drawing at the end of the longer a line equal, by estimation, to the shorter). Subtract the shorter from the longer (by cutting off from the longer a segment equal to the shorter).

It must be remembered that measurements are not necessary in these exercises; it is perhaps rather better to avoid them, in order to train the pupil in estimating magnitudes by the eye.

Now draw three lines, A, B and C. Add them together in the same way. If you now add them together, but put the line C between A and B, would the total length be the same? Why do you think so?

Multiplication and Division—Draw a short line. Now draw others which shall be respectively two, three, four, and five times the shorter one. Make them as nearly correct as you can by the eye. Then divide the longer ones into parts, and see if these parts are equal to the shorter one. If they are very different, try it again. How much longer is the fifth line than the second? How much longer is the fifth than the third? Than the fourth?

Draw a long and a very short line. How many times do you think, on looking at it, that the short line is contained in the long one? (For this exercise, the lines are drawn by the teacher on the blackboard. After several pupils have made their guess, he spaces off by cross-marks on the long line, distances equal to the short one, in order to see how nearly they are correct.)

The exercises may now be extended to estimating the relative sizes of squares and rectangles, and the methods in which they can be compared. The relative values of a cent, a dime, and a dollar may also be shown by lines or surfaces.

Fractions—Draw a line. Divide it into three equal parts. What is each of those parts called? Divide the middle part into two equal parts. How will the mark which does this divide the whole line? How much, then, is a third, and half a third?

Divide another line into four parts. What are each of those parts called? Divide one of those parts into three other parts. What fraction of a fourth will they be? What fraction of the whole line will they be? Then how much is one-third of one-fourth?

To multiply anything by a fraction, means to take that fractional part of it. Then if you multiply this line by five-twelfths, what will be the result? Apply this by drawing a line on your slate some two inches long, or on the blackboard a foot or two in length. Now multiply the line by three, (draw a separate line three times as long). Now by two, on a separate line. Now by one. Now by two-thirds. Now by one-half. Now by one-fourth. Show that two-fifths of one-third is the same as one-fifth of two-thirds. To do this, draw a long line. Divide it into thirds, and divide each of these thirds into fifths. Show where one-fifth of two-thirds will come in. Then draw an equal line; divide it into fifths, and each of those fifths into thirds. Show where the corresponding product comes in.

Ratio and Percentage—Draw two unequal lines. What two numbers represent their ratio, as near as you can estimate? Draw two lines in the ratio of three to five. Draw a line, A. Now under it draw another, B, longer by one-seventh. Under that draw yet another, longer by B than one-seventh of B. Which is the greater, the excess of B over A, or of C over B?

Draw two lines such that half of the one shall be equal to one-third of the other. Show that three times the one is equal to twice the other.

Draw two lines, A and B, both short, but of different lengths. Now draw a third, C, considerably longer than either. Now draw a fourth, D, which shall satisfy the ratio A : B : : C : D.

Such exercises as these need not consume much time; ten minutes a day, three times a week, would probably be enough to devote to them. It would be a question for the judgment of the teacher, whether to go through the whole course at once, or to take each subject when that subject was reached, in regular order.

This practice in dealing with tangible things is not, and ought not to be, confined to the simple graphic representation of quantities. I would substitute for at least one-half the "sums" given in arithmetic a course of calculations of sizes, weights, and values of familiar things. The dimensions of the schoolroom would afford an excellent basis for a number of exercises. The number of square feet in the floor and walls, and the number of cubic feet in the room, would both be easily determined. It is no drawback that the height of the ceiling might not be very readily measured. An application of similar triangles could be made, which would afford a preliminary lesson in surveying. A piece of board, sawed in the shape of a right triangle can be held against the wall of the room, with its longer side horizontal, and its hypothenuse pointing at the edge of the ceiling. When this position is found, measure the height of the lower acute angle from the floor, and its distance from the wall on which the hypothenuse is being pointed. We shall then have the proportion, as the base of the triangle is to its height, so is the distance of the acute angle from the wall to the height of the wall above the base. This height being added to the elevation of the base above the floor would give the height of the ceiling.

The weight of the air in the room would next be calculated, on the supposition that each cubic foot of air weighed an ounce and one-third. The weight of the walls and of the whole building; the number of bricks in them; the weight of the air in each room; the pressure of the building per square inch on its foundation; all afford material for a number of computations quite within the power of every boy who is learning arithmetic, and vastly more interesting than the complicated problems in all sorts of business which form so prominent a feature of our advanced arithmetics.

I should extend the same system to the teaching of elementary physics; our text-books of physics have not enough of concrete examples. It would be very interesting to know how many students who have been through a college course in physics could compute the quantity of water that would be evaporated by the heat generated by the combustion of a ton of coal, or how many cubic feet of air could be warmed in the same way. There is no good reason why this kind of elementary physics should not form a part of our arithmetics, except that adherence to traditional customs which is so marked a characteristic of the district school, and the prejudices of the so-called practical man against everything scientific in education.

In the actual solution of arithmetical problems the system can be advantageously extended by requiring a graphical solution of special problems. By a graphical solution I do not mean the working out of a numerical result of lines, but the drawing of lines and figures to represent the magnitudes. Take, for example, the subjects of multiplication and proportion. It could be shown in the former that, if we represent a man by a line half an inch long on the slate, the union of six men could be represented by a line three inches long. If one man could in a day plow a field represented by a line half an inch wide, and an inch high, then the amount of land which the six men could plow in any number of days would be represented by a rectangle upon the line representing the six men, and as many inches high as there are days. Then if the question arose, if five men could plow a field in eight days, in what time could nine men plow it, the pupil would begin by representing the work of the five men during eight days in the way indicated, and then showing that when the base of the rectangle was extended so as to equal nine men, the height would be shorter in the same proportion.

No doubt when the instruction was carried on in this graphic way, and applied to each actual question, the class could not do more than half as many sums. But they would be done understandingly; and it will doubtless be conceded that the doing of a single one understandingly is more than the equivalent of doing a half dozen without understanding.

I would preface the study of geometry by a similar set of exercises, so that the pupil would be studying sensible geometry, and performing geometrical operations by the aid of his senses. This would not be learning geometry merely as a collection of facts, nor would it be abstract reasoning on the subject. The method and the object to be attained will be seen by some examples.

Make an angle, which you think is half of a right angle. Now bisect it. Make another, and trisect it. Now make another set of angles, gradually increasing up to nearly the sum of two right angles. Keep on increasing the angle so that it shall run over two right angles. Continue to increase until the moving side of the angle is nearly back into coincidence with the other. Now bisect all these angles in succession by a continuous process. Notice what becomes of the bisector when the angle is greater than two right angles.

Draw a figure of any sort, and put a straight line through or near it. Now show how the figure will look if turned over on the straight line as an axis.

Define and draw a figure which shall be symmetrical as to an axis.

In how many ways can a square be applied to itself so as to coincide with its original position?

From a vertical line draw a number of horizontal straight lines, parallel and equi-distant, but in arithmetical progression. How will the other ends be arranged? If the lines, instead of being in arithmetical progression, had been in geometrical progression, what sort of a line would be that passing through their free ends?

After a number of preliminary exercises like these it can hardly be imagined that the *pons asinorum* would offer any difficulty, but, if it would, the pupil could be still further helped on by causing him to actually make material triangles of pasteboard, in order to illustrate some of the theorems.

In beginning algebra, there would be fewer new conceptions to be thus materialized, since all the operations with which it is concerned have already been met with in arithmetic. But there is yet another desideratum to be accomplished, namely, the familiarizing of the pupil with the use of symbolic language. The earlier this is done, the better. Even in arithmetic he may often find an advantage in representing quantities by letters. The pupil should devote a portion of each lesson to such exercises as this: What is the cost of m pounds of beef, at x cents a pound, and p pounds of butter, at y cents a pound? True, there is nothing here that is ordinarily called an exercise, since there is no arithmetical or algebraic process. But in learning a language something else than exercises is necessary, and algebra is a kind of language; at least a peculiar kind of language is used in it. To be proficient, this language must be learned like any other unusual and foreign language, by practice.

It may be true that in adopting the system set forth in the recent paper, the pupil would not get through any one book more rapidly, and would make no better show of his knowledge at an exhibition or examination. The advantages to be gained would be fewer courses, through fewer details of arithmetical applications being necessary, and a greater facility in the application of arithmetic, algebra, and geometry to practical questions.

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VIII

THE DUBLIN TER-CENTENARY

Professor Mahaffy, in a recently published paper, has called attention to the number of festivals commemorating the beginnings of universities that the closing decades of the century have witnessed. Those of Bologna, Edinburgh, and Dublin in Europe, and of Harvard and Columbia in our own country, will most readily occur to everyone. The latest of them all, the ter-centenary celebration of Trinity College, Dublin, was by no means the least interesting, and in what may be called, without hyperbole, the splendor of its spectacular side, it was certainly one of the most successful. Long preparation, a most judicious grouping of events, and unlimited resources, combined to make upon the mind of all who were privileged to be present during the four days of its continuance, an indelible impression. Even the weather, which in Dublin is proverbially fickle, lent unbroken sunshine to the festival, and the imposing processions of the gorgeously begowned dignitaries from all quarters of the enlightened world, as well as the delightful garden parties and outdoor receptions, escaped with their mediæval magnificence unmarred by the intrusion of an umbrella.

An especial piquancy was added to the celebration for those who were alive to the delicate *nuances* of a situation in which the dignitaries of a college more Tory in its traditions and sentiments than any at Oxford, were necessarily associated with the representatives of Irish Nationalism in the center of a Parnellite city, and at the very hour of the most exciting election in recent English history. Considering the intensely bitter feeling that has in the past resulted from the political strife in Ireland—a bitterness comparable with that felt in the South at the close of our own Civil War—one could not have been surprised if some note of discord had occasionally broken in upon the harmony of the festival. But the generous pride of Irishmen in what is, after making all possible deductions, a truly national institution, the heartiness of Irish hospitality, and the national tact and generosity of the Irish people, buried the memory of political and social feuds, so that Parnellite, McCarthyite, Gladstonian, and Tory knew for the time no rivalry save that of being foremost in the proffer of innumerable courtesies to the university's guests. From the Viceroy, Lord Zetland, and the learned provost, Dr. Salmon, representing the ultra-Conservative sentiment, to the Lord Mayor of Dublin, who was at the very moment of the celebration, a candidate in the Parnellite interest for Stephen's Green, only one spirit was shown—a spirit of harmony, courtesy, and unbounded hospitality toward the hundreds of foreign delegates and guests.

The body of delegates and guests was truly representative of all departments of letters and science. The list is far too long to give, but such honored names as those of Professor Blass of Kiel, Professor Robinson Ellis, Sir James Paget, Professor Max Müller, Professor Maertens of St. Petersburg, Professor Butcher, and Sir Frederick Leighton may be selected as characteristic of the catalogue that filled some forty pages of a Directory printed by the University. Lord Dufferin represented the Royal University of Ireland, as its Rector. Lord Wolseley wore the scarlet of his doctorate over the still more brilliant uniform of a British general. Professor Vambéry of Buda-Pesth gave a Kossuth-like exhibition of fervid Hungarian eloquence at the presentation of the addresses, on which occasion President Gilman of the Johns Hopkins University won a most cordial greeting from the vast audience by his graceful, genial, and sympathetic little oration. Mr. Henry Irving, whom the University honored with its degree in letters, was naturally a popular favorite with the undergraduates, who bestowed upon him the somewhat terrifying compliment of a "chairing." General Francis A. Walker, Professor O. C. Marsh, Professor Isaac Hall, and Dr. T. S. Billings were prominent among the American scholars who received the Dublin doctorate.

It is now too long after the event to recapitulate the details of the ter-centenary—the two great processions of the university officers and the invited guests, the brilliant balls at the Mansion House and in Leinster Hall; the receptions by the Chancellor, Lord Rosse, by the Provost, by Lord Wolseley, and by the Earl (now the Marquis) of Zetland; the garden party by the Fellows; the conferring of honorary degrees, the presentation by the foreign delegates of congratulatory addresses; the various banquets, dinners in hall, concerts, and theatrical exhibitions; and the graceful private hospitality shown by the hosts to the various guests of the university. Apart from the brilliant social functions, it was an occasion that emphasized to many visitors how false the appellation of "the Silent Sister," has become as applied to Dublin University! To know such scholars as Lecky, Dowden, Tyrrell, Bury, Palmer, Purser, Salmon, and Mahaffy was to see a living refutation of a name to which the Acting Public Orator, Professor Tyrrell, in conferring the degrees, made a neat allusion in these words:

"Meministis sine dubio nomen quondam inditum huic Academiæ, *Sorori Tacitæ*. Sit nunc tacita, sit loquax, sit qualiscunque; saltem hoc fausto die, cum tam electum gratulantium chorum sui honoris causa confluxisse videt, ut Latonæ apud Vergilium sic nunc illius

"Tacitum pertentant gaudia pectus."

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IX

EDUCATION IN FOREIGN PERIODICALS

Present-Day Handwriting

MR. JOHN JACKSON, IN THE "LONDON JOURNAL OF EDUCATION"

"The handwriting of the age is unsatisfactory. So say the press and the public. The advance in handwriting—if advance there be—has not kept pace with the progress of education. Notwithstanding all our increased facilities in superior teaching, buildings, appliances, and apparatus, the penmanship of the age has not improved. Some, who are admittedly observant and accurate judges, declare it has deteriorated. Complaints are loud and far spread. Even in the United States, where everyone can read and write, we are told that 'not one person in a hundred writes a decent, legible signature'! Following hard upon this startling declaration—or revelation—comes the echo from a London daily: 'It is quite an exception to come across a letter that, even with a certain amount of leniency, can be said to be written at all legibly or distinctly.' Then, again, in strict accord with these, we have the independent statement of a city magnate at the Mansion House 'that fully ninety per cent. of the young men who applied to him for situations wrote with a slovenliness altogether inexcusable.' This personal experience is true and typical in the case of hundreds of our merchants and professional men, who throw nineteen out of every twenty such letters of application into the waste-paper basket unread, if not unopened.

"But, besides these testimonies, what does every morning's post bring to each of the readers of this article? Are not the illegible scrawls that reach and torment us daily, sufficient to convince one of the lamentable state of things—a state of things, be it remarked, that indicates inefficiency or defect somewhere. Surely, such torture is not an intolerable necessity! But we anticipate.

"An examination of the caligraphy of the present day will reveal some curious facts. In the upper classes an almost totally illegible style appears to be cultivated with a pertinacity worthy of a better cause; and in one sense these unreadable emanations may be taken as complimentary, since they assume an abnormal development in the power of deciphering unknown hieroglyphics in the readers of them. Undoubtedly, the question is a serious one, deeply interesting, and not less important. Such a deplorably low standard in the upper educated classes would naturally augur ill for the middle classes. Strange to say, however, it is here that the element of good writing is not, to speak reservedly, most conspicuous by its absence. Whilst a very large majority write, or rather scribble, execrably (and some few hopelessly), there is a residue that may be classed amongst good writers. Finally, through the length and breadth of the *masses*, 'handwriting' almost loses its identity, merging into non-existence with hundreds of thousands. Is there not a remedy? There certainly must be a reason that will account for the universally prevalent caligraphic depravity.

"Instinctively one turns to the schools, and asks what sort of writers are manufactured there to be sent out into public life every year? Can the youths who enter our universities and offices direct from school boast of their style of writing? Are they rapid, expert, or legible writers? Quite the reverse. Were it permissible in this paper, we might expatiate very fully on the history of the inquiry that has, it is believed, settled the matter once and forever. Suffice it to say that an inquiry has been instituted, experiments and observations have been made, with a view to discover the cause of the evil, and we rejoice to know that the investigation has been eminently successful.

"It is rather remarkable that the origin of the agitation and undertaking was not caligraphic or educational, but purely and simply hygienic. So far as the bad writing was concerned, people contented themselves with grumbling, and it would have ended there, but for the alarming spread of spinal curvature and short sight amongst children. Specialists were appointed to investigate, and a host of medical men in Austria, Germany, and England have devoted themselves to the study of this question. With an ardor and perseverance worthy of all praise, they examined, observed, and experimented, their experiments extending, in some cases, over thousands of children, and occupying the greater portion of their time for months, or even years. More than once the investigators were on the wrong scent—their object being, of course, to find out the cause of the evil that confronted them—as, for example, when they accused the teachers, and laid the whole blame upon bad teaching; or when they attributed the ailments to bad light, bad desks and seats, or to bad position of the copy book.

"Undeterred, the inquiry went on, and at last it was narrowed down to the writing itself, which now received the closest attention of the experts. Experiments on a larger scale were arranged for and completed in some of the public schools, and, almost simultaneously, identical results were arrived at in different centers. It was found that the *slope* of the writing demanded the twist or contortion of the body, which twist or contortion was the sole cause of scoliosis on the one hand, and the primary cause of myopia on the other.

"It may be remarked, however, that, twenty years previously, Dr. Fahrner, of Zürich, wrote: 'We let our children grow crooked, in order that their handwriting may be nicely sloped'; but his words fell on deaf or incredulous ears. But what a contrast presents itself on the continent, and in many circles at home at the present time. The cry on all sides, ever getting louder, is, 'Death to the slope!' thus reversing the practice of the preceding two centuries, which has been 'Slope to the death!' The appeal of Dr. Sommer, of Brunswick, 'Oh, when shall we at last be free from this unhappy gift of the Middle Ages?' can now be definitely answered.

"Slanting writing, then, is doomed, since it is proved to be both injurious to the body and inimical to a high standard of excellence. The writing of the present day is sloping as a rule, and as a rule it is equally bad. We shall endeavor to prove, not only that it is bad because it slopes, but that, if it is to be good, it must be vertical.

"Going back beyond the Middle Ages, we find that up to about the sixteenth century *all writing was vertical*, and certainly it was superlatively good, as anyone may satisfy himself by going to the British Museum and delving amongst the treasures of the Parchment and Manuscript Rooms. And it is as incontrovertibly a fact of history that no sooner was the sloping or Italian style introduced than the downward grade commenced. Indeed, it is obvious that Slope and Scribble are Siamese twins. So it was from the beginning—'Slope' deposed the 'Upright' and 'Scrawl' was the outcome.

The evidence of history, then, is overwhelmingly in favor of verticality.

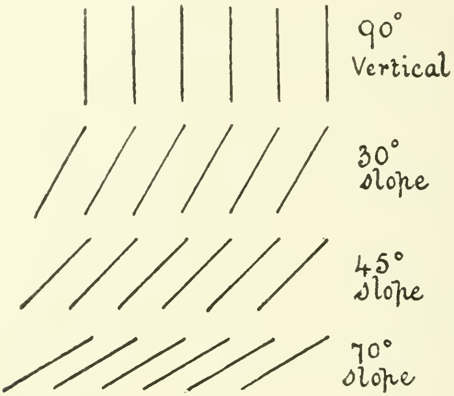
"But writing may be viewed in several aspects—hygienic, caligraphic, economic, and educational. What have these ruling principles to say on the question of Upright *v.* Sloping? Hygiene speaks with no uncertain sound. Medical research has fully proved the following positions: (*a*) That myopia is developed almost exclusively during school life; (*b*) that scoliosis is still more emphatically developed during the same period; (*c*) that myopia and scoliosis are distinctly traceable to the bad postures assumed and taught in the writing lessons; (*d*) that these unhealthy positions are entirely due to the 'slope' or 'slant' of the writing; (*e*) that it is impossible for writers to avoid twisting the spine unless they adopt an upright style of writing; (*f*) that vertical writing neither requires nor permits any postures of a painful or injurious character; (*g*) that vertical writing is the only system consistent with all hygienic requirements and principles. (See the exhaustive works of Drs. Schubert of Nuremberg; Noble Smith, of London; Bayr, of Vienna, etc.)

"It is then self-evident that, if vertical writing avoids all abnormal postures, it produces neither myopia nor scoliosis, and is therefore much to be preferred from the hygienic standpoint, as greatly superior to all forms of oblique penmanship.

"In dealing with caligraphic demands, it is expedient to consider, first of all, what are the essentials of a really good handwriting. These fundamental elements may be taken to be simplicity and legibility. Some would add beauty; but if the writing be composed of letters well formed, with simple outlines, short loops of uniform shape, and legible withal, it cannot fail to recommend itself as beautiful.

"Both styles of writing, the vertical and the oblique, may claim an equal share of honor on the score of simplicity, with the single exception of 'slope.' Whilst both may be equally simple in shape or outline, the former has the unique simplicity of the *one* vertical direction, whilst the other has the diversified complexity of an infinity of slopes. And it is in this manifold slope that the great—the insurmountable—obstacle of 'oblique writing' lies. A child easily, readily, and naturally, recognizes a perpendicular stroke or line, but all oblique angles present difficulties that only a trained eye can possibly appreciate and overcome. No juvenile could strike off or maintain an angle, say of 35½ degrees, from the vertical. Upright writing is in a very great degree simpler than the sloping style can possibly be.

"Moreover, it is evidently far more legible. No one after a moment's thought can fail to realize this fact. Roman type is more easily read than italics, and the reason is not far to seek. In upright penmanship and roman type the down strokes and lines are much wider apart than in the oblique style, and it is a law of optics that, the closer objects are to each other, the less easily distinguishable they are. A simple geometrical experiment will convince the most skeptical (if skepticism be at all possible) on this point—such as the diagram now produced.



"The reader will observe that these right lines are all drawn from equi-distant apices, and that as they slope so they approach each other, the degree of distinctness diminishing with every degree of slope from the vertical. Argument is superfluous in presence of the illustration. Vertical writing unquestionably possesses the maximum of legibility. Economically, it will be seen that vertical writing has an advantage over all systems of oblique penmanship in every respect, viz., as to time, space, labour, and expense.

"Experiments conducted by teachers simultaneously on the Continent and in Great Britain show conclusively that the vertical style can be written more quickly than the slanting. Writers who have only practised the system of upright penmanship for a few months have invariably exhibited their superiority as quick penmen in contests conducted by their teachers—Herr Bayr, Professor Scharff, and many German and Austrian teachers having supplied evidence and information on this point. It is impossible to give the philosophical and scientific reasons for this greater speed in the vertical. They are fully set forth in works on the subject.

"The economy in space is even more defined and pronounced. A reference to specimens of the two styles will determine the question at once. Finally, how many thousands of sloping writers resort instinctively to the vertical when wishing to compress their work into little room.

"The labour or energy economized by the use of vertical writing forms one of its principal features and recommendations. It will hardly be credited that not more than two-thirds of the work is required for upright penmanship, but experiment and experience invariably demonstrate the accuracy of this statement. A material saving of expense is the inevitable consequence. Less time, less space, less labour, and less material naturally mean less expenditure.

"Finally, we contemplate the educational merits of the two styles, and ask which system is the easier to learn, to teach, to write, and the more conducive to discipline. In all these respects, experience abundantly shows the vast superiority of vertical writing. As in the hygienic department medical men are the recognized competent judges, so in the educational section teachers—and teachers only who have fairly tested both systems—must constitute our Court of Appeal. Again, we can merely tabulate the conclusions that have in every case been arrived at. Test experiments on an extensive scale, and uniform experience, show that (*a*) vertical writing can be acquired in much less time than is needed in the sloping system (from one-half to two-thirds is the general estimate); (*b*) vertical writing is taught with about half the trouble and supervision requisite in oblique writing; (*c*) from the shorter lines and natural postures, upright penmanship is far easier to write; and (*d*) vertical writing is more conducive to good order, since the position of the scholar in that style renders talking more difficult and the detection of it by the teacher more easy. Summing up the arguments, they appear to be absolutely irresistible and unanswerable as against sloping writing, which is responsible for so much bad caligraphy, and, what is indefinitely worse, bad health. The suggestion of a representative congress of teachers to seriously consider the question might here be thrown out, as such a reproach against the profession is calculated to cause mischief if not rebutted or removed. With all confidence and some knowledge of the matter, we can say that the charge against the teachers is *not* altogether groundless. If experiments similar to those carried on for some two years past in Germany and Austria, particularly in Vienna, were promoted, say by the School Board for London or by a mixed committee of medical and educational specialists, some definite practical issue would be arrived at that would establish the principle irrevocably one way or the other, and leave no room for further uncertainty or possible controversy.

"Even without this authoritative dictum, the vertical system—which has been actively promulgated for six or seven years in Great Britain—has made most remarkable progress, and is rapidly and successfully superseding the oblique style of handwriting in schools, offices, State departments, and amongst the people generally. If, as its promoters state, upright penmanship secures to us good writing and good health (neither of which, according to evidence given and two centuries' experience, is possible with sloping writing) at a less expenditure of energy, surely the sooner such a system becomes universally adopted by our people as the national style of handwriting, the better it will be for all concerned, both in the present and future generations.

"It may be expedient, in closing this brief article—an article that hardly touches the fringe of the discussion—to make a passing reference to some of the objections which from time to time have been raised by the advocates of sloping writing. Nevertheless, it must be borne in mind that the whole of these objections emanate from those who have never tested the system of upright penmanship, and who are consequently entirely unacquainted, practically, with its merits or demerits. What value, if any, attaches to such criticism, every intelligent reader must determine for himself. The first impression one receives on reviewing these objections is, that they are very few and very frivolous—insignificant alike in quantity and quality. Necessarily so. Objector *Number One*, as he turns the writing up and down, twisting his head first on this side and then on that, exclaims, with oracular emphasis, 'I don't like it! No! I really don't like it!' and the fate of a system is thus irrevocably fixed. Argue with that man? With that woman? Vain attempt. Vertical writing is rotten, vicious, worthless, *because* the critic doesn't like it. A variation on this is the familiar reply, 'It doesn't look nice!' and these two expressions constitute the most frequent of the objections to this natural style of caligraphy. Appearances are no true test of a system, but, even when were they admitted as factors in an opinion, such items would be as salient in the hands of vertical writers against sloping or oblique penmanship. The delusion that the upright style is slower than the slanting, has been already dealt with in the paragraph on economy, but a great number of people still labour under the misapprehension. Then again, and lastly, we are told that this '*Vertical writing will make too great a change.*' Our belief is that too great a change from the bad writing of to-day cannot well be accomplished. Indeed, the greater the change the better.

"These trivialities comprise all we have encountered from the most vehement of oblique writers during a vigorous six or seven years' propagandism in the United Kingdom, and of late even these objections have waxed feebler and fainter, until they are all but inaudible. Once our teachers of all grades are thoroughly aroused to a sense of the importance of the issues at stake, there can be little doubt that upright penmanship will carry the day."

X

REVIEWS

Die Arbeitskurve einer Schulstunde.—Von Dr. LEO BURGERSTEIN. Hamburg u. Leipzig, 1891, pp. 40.

The Growth of Memory in School Children.—By Thaddeus L. Bolton, A. B., *American Journal of Psychology*, vol. iv, No. 3., pp. 19, with three charts.

These statistical investigations of the nature of mental processes in school children, and of the influences affecting them, are important as indicating the great possibilities of experimental inquiry in these directions, the necessity of substituting patiently won facts for theory and supposition, and the essentially close and vital relation between the teacher's task and the psychologist's teachings.

Dr. Burgerstein studies the mental fatigue of school children in the course of an hour's work in addition and multiplication. The tasks he sets the children are to alternately add two numbers of 20 digits each and multiply such a 20-place number by 2, 3, 4, 5, or 6. Twenty such calculations are printed on one sheet, and the children are allowed just ten minutes to work at each sheet; four such tests or sheets, I, II, III, and IV, were given, with five minutes rest in between. One hundred and sixty-two children in all took part in the test, 35 of a class the average age of which was 11 years, 33 of a class aged 11 years 10 months, 44 of a class aged 12 years 2 months, and 50 of a class aged 13 years 1 month. The total number of digits appearing in the total results is 135,637--70,787 in additions, and 64,850 in multiplications. In all there were 4.8 per cent. of errors and 2.0 per cent. of corrections; in additions 3.2 per cent. of errors and 1.6 per cent. corrections; in multiplications, 6.6 per cent. errors and 2.3 per cent. corrections. By comparing the amount of work and the proportion of error in the four successive periods of work (I, II, III, and IV), we are enabled to discover the period at which a decline in capacity takes place. That such a falling off does ensue within the hour is abundantly evident, and Dr. Burgerstein has presented it in many patiently elaborated tables. While twenty-one of the 162 children made no error at all in the first task, only seven made none in the second, six in the third, and four in the fourth; those who fell a victim only to the snares of addition were 60 in the test I, and 38, 33, 28, in II, III, and IV; while multiplication failed to overcome 34 in test I, 19 in II, 11 in III, and 11 in IV.

It appears that while the amount of work done increases as the tasks proceed, the quality of the work degenerates. Test II shows 14.8 per cent. more work than test I; III, 25.3 per cent. more than I; and IV, 39.5 per cent. more than I. But II has 51.5 per cent. more errors and 58.2 per cent. more corrections than I; III has 136.3 per cent. more errors and 162.8 per cent. more corrections; and IV, 177.3 per cent. more errors and 194.0 per cent. more corrections. By observing that the *increase* of the number of digits in the results is 4210 of II above I, 2966 of III above II, and 4007 of IV above III, and also that the increase of errors is 441 from I to II, 719 from II to III, and 349 from III to IV, and of corrections 207, 166, and 225—it is clearly shown that the mental capacity decidedly falls off at the end of the second period of ten minutes. The increase of work (and of corrections) from II to III is least, and the increase of error greatest. Or again, there is 3.010 per cent. of error in period I, 3.978 per cent. in II, 5.673 in III, and 5.982 in IV; the most marked difference appearing between II and III. The same is also true of each class separately; and is likewise true of a very large number of the individual pupils. It is also to be observed that, after this decline of power sets in, the children get their second breath, and do comparatively little worse in the fourth than in the third period. This is Dr. Burgerstein's main result: he also presents an analysis of the nature of the errors committed; and an almost too full and involved discussion of the statistical treatment of his results. The lesson to be drawn from these conclusions is that for children of this age a more frequent change of occupation, and more frequent recreation is necessary than is afforded by periods of 50 or 55 minutes for each study. The conclusion is of course to be modified by the nature of the occupation. The result is certainly valuable, but its application must be made with caution and judgment.

Mr. Bolton's tests, conducted by Dr. Franz Boas in the schools of Worcester, Mass., were addressed to the ear rather than to the eye. A series of 5, 6, 7, and 8 place numbers were read to the children in a regular, monotonous tone, at the rate of about five in two seconds. After each number was read the children, at a given signal, wrote down the numbers as they remembered them. A number was considered correct only when it has the right digit in the right place. The number of such sense-impressions that can be accurately reproduced after a single hearing is called the "memory-span," and this in the present tests is about *six*, for children from nine to fourteen years of age. Several classes were tested, and by comparing the rise in correctness of reproduction with advance in class and in age, it is concluded that "the memory-span increases with age rather than with the growth of intelligence. Experience in this matter is a better school than books." The query is close at hand whether this test would at all correspond with the proficiency of the pupils in their school work; and Mr. Bolton's answer is that while high standing is more often than not accompanied by a large memory-span, the relation between them is far from universal or necessary. It is also true that the girls excel the boys in this memory test.

Mr. Bolton finds that the capacity to remember dictated numbers rises as the tests proceed, thus indicating the effects of practice; and there is evidence, too, of some amount of unconscious memory from one day to the next. A comparison of the tests made in the morning and in the afternoon fails to reveal any effects of fatigue, from which it is concluded that the day's work is not excessive. It must be remembered, however, that the test is one of brief concentrated attention rather than of a prolonged memory-task. Regarding the nature of the errors, they appear to be very largely inversions of order (53 per cent.), certain natural or artificial associations often determining the nature of the inversion; next, substitutions of another number for the true one (31 per cent); and under- and over-estimations of the number of digits (15 per cent.). A very interesting point relates to the most probable position of the error; and the result is that the *first* and *last* numbers, and then those nearest these places, are best remembered. We have thus corroborated the rhetorical principle that the emphatic words of a sentence are the first and last. In addition to the points here noticed, Mr. Bolton presents an able discussion of the method of computing the data and arranging the tests.

These conclusions are in no sense final, and are manifestly limited in scope; but they are certainly valuable so far as they go, and their suggestive value and incentive to set others to work, it is hoped, will lend them additional interest.

JOSEPH JASTROW

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Handbook of Psychology; Feeling and Will. By JAMES MARK BALDWIN, M. A., Ph. D., Professor in the University of Toronto. New York: Henry Holt & Co., 1892, pp. xi, 394.

One naturally compares this volume from the pen of Professor Baldwin with the new work by Professor James, which everyone interested in psychology has been reading. In clearness and force of style, in avoidance of unnecessary technicality in language, the advantage lies with James. Not that the latter is always clear,—it would be difficult to find a more unsatisfactory bit of writing than his chapter on conception, for example,—but ordinarily he is straightforward and unmistakable, and will be read by most thoughtful persons with a pleasure arising partly from the brilliant and entertaining style in which his thought is expressed. Professor Baldwin, on the contrary, uses throughout the language of the schools, and his book is not easy reading. He abounds in such sentences as the following: "Ethical judgment is, therefore, the belief form of the ethical ideal as far as its elements are conceived"—a sentence which could only strike dismay to the heart of the student using this volume as a text-book. This defect in diction is a serious defect in what is otherwise a thoughtful and learned work, and will, in my opinion, detract from its influence.

In systematic arrangement the advantage is clearly with Professor Baldwin. The apparently accidental arrangement of chapters in James's book he has declared in his briefer works to be of *malice prepense.* In that case one can only regret that it seemed good to him to arrange things as he has. Professor Baldwin, on the other hand, is thoroughly systematic, and the student will find this of no small assistance in gaining a clear conception of the outlines of the subject discussed by the author. Again, Professor James, although an advocate of the study of psychology as a natural science, has filled his book from beginning to end with metaphysics. His chapter on sensation, to give one out of many possible examples, is not a psychological discussion of sensation at all. It is a philosophical polemic. Baldwin distinguishes carefully between what is psychological and what is not, and tries, at least, to keep metaphysics proper out of his chapters. How far it is possible to separate the two fields is a matter of dispute, but it is not difficult to distinguish books largely metaphysical from books chiefly psychological, and psychologists of the present day are generally of the opinion that some division of labor is a desideratum.

Professor Baldwin's account of the feelings would be clearer if he held fast to the distinction between the broader and the narrower sense of the word "feeling," and made unmistakable in what sense the word is used in each case. Feeling is defined (p. 85) as "the simple awareness of the unreflective consciousness." Sensations of all kinds, whether special or organic, are brought (p. 86) under the common name, feeling. When, however, it is asked what is the common mark that brings all these mental elements under the one name, Professor Baldwin answers that it is the element of pleasure and pain attached to them (p. 86). Now, if by feeling we mean pleasure and pain. and not, properly speaking, the psychical states they accompany, we use the word in a sense quite distinct from the broader one also justified by common usage, which applies the word feeling to any dim and indefinite state of consciousness. In this latter sense of the word we may feel that an argument is right when we do not distinctly perceive the validity of the steps by which it arrives at its conclusion. In the former we *feel* pleasure in thus feeling the argument to be right. Now, Professor Baldwin does not keep consistently to either sense of the word, as might be illustrated by quotations from pp. 135, 251, 149, 155, 169, etc. If the reality-feeling be a distinct element of consciousness, given with each experience of a real object, it must be present in the mind of the child from the first experience of such an object, and must not attach to mere images. If, on the other hand, it be merely a name for the perhaps indefinite recognition of the relation of the experience in question to other experiences, the word feeling is used in the broader sense and these difficulties are avoided. In the latter case, however, idealistic philosophy cannot with even apparent plausibility be called a "revolt from the sensational coefficient" (p. 169), as the primary criterion of external reality given by Professor Baldwin is identical with that given by Berkeley in the early part of the last century, and is one more in harmony with Berkeley's notion of what constitutes reality in ideas than with that of Professor Baldwin. It will readily be seen that the psychological discussion of feeling has no little significance for epistemology.

Professor Baldwin's discussion of volition is more clear and satisfying than his chapters on feeling. His way of stating the elements present in volition, and his treatment of the problem of the freedom of the will, are admirable, and must interest both those who agree with him and those who dissent. He agrees with James in granting consciousness a causative efficacy. He repudiates indeterminism and external determinism, accepting the view that volition is the expression or realization of the man, and thus in a sense determined, but determined from within.

GEORGE STUART FULLERTON

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The Principles of Agriculture for Common Schools.—By I. O. WINSLOW, A. M. New York: American Book Company, 1891, pp. iv, 152.

This little book has been prepared to meet a demand frequently expressed in newspapers, and occasionally felt by earnest seekers after knowledge of farming. It probably answers its purpose as well as such an epitome of general principles can, and is marred by as few inaccuracies of statement as any similar book. That it will serve its purpose of instruction in the common schools may, however, be doubted. It is a collection of general statements from standard authorities in chemistry, botany, geology, physiology, physics, and meteorology, with a very few practical applications of such principles. In general these statements must be taken without illustration or proof, and in many instances without means of understanding what they teach. Naturally, the effort to condense such a mass of information into a few pages makes the statements peculiarly bald and uninviting. To an average youth of fifteen, without previous knowledge of the sciences borrowed from, these bald statements have almost no meaning, and the effort to learn and recite them is a mere exercise of memory. To farmers of experience, the book will be of little help, except in furnishing a very few tables of relative values of feeds, and a few suggestions as to tillage. I cannot see any probability that it will meet the want of a text-book for the common schools.

The fact is that any teaching of agriculture in the common schools should proceed from things and rules already familiar, and principles already established, and should lead pupils, even at an early age, to look at the things they handle every day, with some idea of finding out how nature acts. The general principles can then be given as a summary of experience. The general statement as to vegetable growth, for instance, is worth something to one who has seen it illustrated by actual examples of growing plants. The whys and wherefores of ordinary practice in farming may be understood only after a considerable aquaintance with effects of the practice. General directions founded upon principles may be multiplied to advantage if they are clearly expressed and illustrated by the simplest of examples. I believe problems in agriculture might be proposed to the advantage of students, the rules and data for solution being given as in other sciences. Of course, any book for developing agricultural knowledge among common school pupils should have, first and foremost, the idea of interesting them, and should teach observation in the clearest possible manner. An effort to teach agriculture by simple condensation of knowledge into a few pages, is likely to be as successful as would be the teaching of medicine in a similar volume.

The chief obstacle to teaching agriculture in common schools is the want of teachers themselves interested in the subject. The admirable young men and young women who manage the country schools cannot be prepared for such teaching without a longer course of study than many of them receive. Of those who do receive such training, few have the tact to use well the everyday materials for illustration and observation. The same difficulty appears in the teaching of most of the arts of life. Any successful teaching in this line is truly elementary in subject-matter and method. Elementary practice is the foundation of all accurate knowledge in arts of every kind. Agriculture can be no exception this rule.

GEORGE T. FAIRCHILD

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A First Book of Electricity and Magnetism, for the use of Elementary Science and Art, and Engineering students, and general readers.—By W. PERREN MAYCOCK, M. I. E. E. London: Whittaker & Co., 1891, pp. 133.

This little book is intended, as the author states in his preface, to be an easy introduction to the ordinary elementary text-books on electricity and magnetism, such as that of S. P. Thompson. At the present time, when electrical appliances are so familiar in everyday affairs, it is almost a necessity for everyone to understand the fundamental laws that underlie the applications. To those beginning this study, it is especially important that their first conceptions be accurate; and to that end it is advantageous that their text-book be free from loose statements, and yet express the fundamental facts in simple, concise, and accurate language. This Mr. Maycock has done in the volume before me, and it should commend itself to teachers in high schools and preparatory institutions. The book is primarily intended to cover the syllabus of the elementary stage in the government department of science and art in London.

The subject-matter is taken up in order under the following headings: magnetism, electro-kinetics, electro-statics. Simple experiments which every student should perform are suggested and described; and at the end is given a list of the necessary apparatus, which may be had for a very small sum. All explanations are based on the latest ideas; the conception of lines of force is early introduced, and its importance emphasized.

The cuts throughout the book, if not æsthetic, have the merit of clearness and simplicity. At the end of each division are questions, to which the student should be made to write out answers, in his own language as far as possible, with a view to correct expression. Ruled paper for notes is bound with the book at the end, which some may think advantageous. The author promises a second book of electricity and magnetism, which shall be more advanced, and in which he will enter into the consideration of the construction of apparatus.

A. S. MACKENZIE

BRYN MAWR COLLEGE

XI

EDITORIAL

The world of letters and of politics has paid its tribute to George William Curtis. His services to higher education were less conspicuous than those to literature and public life, but hardly less important; for the influence of his lofty ideals, fine enthusiasm, and graceful literary art was often felt in academy, college, and university. As Chancellor of the University of the State of New York, Mr. Curtis occupied an educational position of great honor and dignity. His interest in the expanding work of that remarkable institution was very great, and his aid and counsel will be sorely missed. The place of Chancellor Curtis must be occupied, but can hardly be filled.

It is interesting to learn what a large proportion of the new British House of Commons are highly educated men. Of the 670 members, 245 have been to either Oxford or Cambridge; 144 were at the former, and 101 at the latter university. Of the great Public Schools, Eton is represented by 107, and Harrow by 55. London University has 13 graduates on the list; Trinity College, Dublin, has 17; Edinburgh, 16; Glasgow, 8; St. Andrews and Aberdeen, 5 each. The new ministry contains an unusual number of men who have won academic or literary distinction before taking up politics.

England has as yet no distinctive minister of education, but in many respects the Vice President of the Committee of the Council on Education serves in that capacity. No little interest was manifested in Mr. Gladstone's selection for this office; as the successor to Sir William Hart-Dyke—who, though a Tory, has associated his name with free elementary education and the extension of technical instruction—will have an opportunity to accomplish many important reforms. When the new appointments were made public, it was found that this post fell to Mr. Arthur H. D. Acland, one of the best fitted men in all England to occupy it. For some years Mr. Acland has been dubbed in Parliament "the member for education," because of his great interest in educational topics and great familiarity with them. Mr. Acland is a leader of the younger Oxford liberals, and has been prominently identified both with university extension and the technical education movement. He first proposed turning over the extra duty on spirits to the county councils for educational purposes, and is the introducer of the bill for the registration of teachers—the passage of which will make teaching in England a profession in fact as well as in name. It is noteworthy that Mr. Acland is also to have a seat in the Cabinet. This is an honor enjoyed by none of his predecessors save Mr. W. E. Forster, and marks Mr. Gladstone's high appreciation of the importance of state action in education.

One of the very best educational journals published in the English language—*The Academy*, edited by Mr. George A. Bacon of Boston—has suspended publication. The secondary schools, to whose interests it was chiefly devoted, and of which it was the acknowledged organ, will deeply regret the necessity of this step. High-class educational magazines and papers are lamentably few, and no one of them can well be spared. Several score of the wretched periodicals that bind teachers down to personal gossip, wishy-washy "pedagogy," and more or less dubious "methods of teaching," could profitably be exchanged for one *Academy*. It was conducted upon a high plane, with intelligence and courtesy, and its editor has won for it and for himself the esteem of all who gave it their support.

A translation of Lange's *Ueber Apperzeption* is one of the results of the Round Table meetings at Saratoga. One of those bodies formed itself into a Herbart Club, and the members have nearly ready for publication their translation of Lange's important work. Some eight or ten persons are co-operating in the work, which will be edited by President Charles De Garmo of Swarthmore College. It is hardly necessary to point out the value of this translation. Teachers who do not read German can, by its help, come to understand some of the real principles of the newer education. The Herbart Club should not stop here. Surely English translations of some of Rein's writings and of Ufer's' *Vorschule der Pädagogik Herbart's*, and other similar works, would find many readers.

The EDUCATIONAL REVIEW cheerfully complies with a request to assist a member of the department of the history and art of teaching of Harvard University in obtaining information concerning normal instruction for teachers given in connection with secondary schools. Principals of secondary schools that offer any normal instruction are invited to correspond with Mr. H. Gordon Johnson, 48 Concord Avenue, Cambridge, Mass., who is carrying on an investigation concerning this subject.

The movement in the grammar schools goes rapidly on. The time for prolonged discussions and half-way measures is past; the *laudator temporis acti* has been swept off his feet. Even his abuse of the "innovators" can hardly be heard. Professor Hart, in a paper published in this issue, which every school superintendent and principal may well study carefully, tells by what processes of reasoning, and by what adjustments of means to ends, a very elaborate series of reforms has been devised, and put into effect in the grammar schools of Cambridge. Nothing has been done there which any well-equipped city school system cannot, and should not, imitate. At the same time it is announced that in Paterson, N. J., an even larger city than Cambridge, the elementary school course is being reorganized on the new lines. The course of study is framed for eight years instead of nine, kindergartens are introduced in every school, science is to be taught in the lower grades, the readers taken away and the reading of literature substituted, the great surplusage of arithmetic cut out, the departmental system of teaching introduced into the upper grades, and so on. The story is becoming familiar. One city after another is falling into line so rapidly that those who have proposed and advocated these sweeping reforms may well congratulate themselves on the unexpectedly rapid success of their efforts.

Superintendent Aaron Gove of Denver has the exceedingly rare merit among school superintendents of being able to write in very small compass an annual report on the progress of the schools under his direction, and at the same time to say all that ought to be said. In his last report the showing made for the Denver schools is most gratifying. The public schools of Denver have now a national reputation. Holding fast to what has been established, the school authorities have incorporated new features only when in other places they had passed beyond the range of experiment. The introduction of a new feature, when once resolved upon, however, is not made in any half-hearted or "penny-wise, pound-foolish" manner. Thus, drawing was not made part of the course of study until three years ago, but when it did come, it was placed on the same basis as all the other studies whose object is "to round out and complete the discipline of the individual, and not to give certain accomplishments, mathematical, artistic, or other." Music and physical culture have been introduced in the same way. "Music," says Mr. Gove, "is pursued as a study and not as a recreation. Classes are daily conducted by the teacher in charge of the room." For purposes of physical culture, each school building in Denver has been supplied with dumb-bells, wands, parallel bars, and a horizontal bar—an equipment for this purpose which is probably unrivaled in the public school systems of the country. The Denver schools, however, have this great advantage from climatic conditions, that nearly all the work of physical training can be done out of doors all the year round. Such being the case, it is to be regretted that the lessons in physical culture have hitherto been reserved for the pupils of the higher grades. Physical culture is as much the right of every child as is the right of being taught to read.

The most significant thing, however, in Mr. Gove's report is the announcement that steps have been taken toward the establishment of a mechanic arts or manual training high school. The magnificent high school, of which Denver is justly proud, has almost reached the limits of its capacity, and the school board, instead of establishing another literary high school, is wisely considering the propriety of founding a school whose distinctive character shall be the study of science and its applications to the mechanic arts. Should Denver, Boston, and Brooklyn, all of which have this matter under consideration, succeed in establishing manual training schools, a great impetus will be given to the movement, and we may expect to see the technical high school take its rightful position on the same plane as the literary high school, in every large city in the country.

The manual training high school, or mechanic arts school, as Superintendent Seaver of Boston calls it, has emerged from all the discussion and agitation of the past ten years on manual training, as the one institution that is acknowledged, by all who have given it attention, to be a complete and permanent success. Efficient schemes of manual training suitable for elementary schools will doubtless be evolved in time, if, indeed, they have not been evolved already; but the manual training high school, as attested by its magnificent results in preparing its students for every department of active life, by the affection and admiration of those who have gone through its curriculum, and by the popular support it enjoys, may already be regarded as a permanent feature of the American educational system. The history of the manual training schools of Philadelphia, Baltimore, Chicago, and Toledo, is amply sufficient to demonstrate the truth of this assertion. While there are exceptional cases, where manual training, when introduced as part of a scientific course in a literary high school—a "side show," as it were—has partially succeeded, it is also true that the most conspicuous success has been attained where the work has been isolated in a building specially prepared for the purpose, and where it is conducted by specially trained teachers. Manual training will not flourish in an uncongenial atmosphere or where the instructors are not enthusiastic believers in its efficacy as an educational force. The establishment and maintenance of a manual training high school are not nearly so expensive as are the establishment and maintenance of a literary high school; but, still, a considerable amount of money must be forthcoming to support a school of, say, three hundred students. The financial authorities of cities have been slow to recognize the fact that the manual training high school is one of the great needs of our modern industrial civilization, and it now becomes the duty of superintendents, and others who are interested, to foster an enlightened public sentiment, that shall constrain public officials to recognize and perform their duty in this matter.

Boards of education, as a rule, have been quicker to recognize their duty in this respect than have been the officials who control the public purse. In Brooklyn, for example, the board of education has, during two successive years, by decisive votes, asked the city authorities for funds to establish a manual training high school. Each time the financial authorities of the city, at whose head is the Mayor, have refused the appropriation. As the State law on the subject authorizes the introduction of manual training only after the funds have been specifically appropriated for the purpose, the financial authorities are in the position of exercising a veto power over the judgment of the board of education, twice deliberately expressed. Nothing but enlightened public opinion will remedy such a state of affairs.

During the past few years a new phase of the English University Extension movement has been developed at Oxford. Not satisfied with sending her lecturers throughout the length and breadth of England, wherever an audience could be found, Oxford now invites all who have pursued a certain number of University Extension courses to attend lectures in the university halls for two weeks in the long vacation. The success of the University Extension movement in England has been one of the marvels of modern education, but the popularity of these short summer courses is not less wonderful. From all parts of England, young men and young women, from shops, from stores, from the carpenter's bench, from the blacksmith's forge, from the schoolroom, even from the servants' hall, flock to the ancient seat of learning on the Thames to listen to the foremost professors in literature, science, and art. Thus Oxford has become one of the great summer resorts of England; not the resort, however, of wealth and fashion, but of those who, limited in means and circumscribed in action by their conditions of life, embrace this priceless opportunity of spending a few days each year in the "calm air of delightful studies." The diffusion of knowledge, the impetus to high thinking and holy living, that come from such lectures before such audiences, are simply incalculable; but the benefits are not all to the visitors. It was a great day for Oxford when her professors and fellows and tutors emerged from their cloistered seclusion to teach among the common people; when they cast aside the airs of the pedant in order to address popular audiences; when they deserted for a time the musty atmosphere of books to breathe the fresh air of everyday life. While Oxford has become a living source of learning and refinement for the masses, the masses are gradually breaking down the time-honored conservatism and prejudice that still cling to her institutions as the ivy clings to her ancient towers.

Some of our leading American universities that are favorably situated, might do worse than take a leaf out of Oxford's book by the establishment of similar courses of summer lectures. Such courses would be entirely distinct from the summer schools that are already established in considerable numbers. They would call for the best lecturers in the colleges and universities, and should appeal directly to that vast host of young people whose vocations do not permit a holiday of over two weeks each summer.

EDUCATIONAL REVIEW

NOVEMBER, 1892

I

THE SERVICE OF PSYCHOLOGY TO EDUCATION

That psychology stands in a peculiarly close relation to education seems now to be generally acknowledged. We find, on the one hand, psychologists taking pains to show how their principles bear on the training of the young mind, and, on the other hand, teachers looking to every new development of the science of mind for hints on pedagogic methods. The recognition of this organic connection between knowledge of mind and training of mind is due in part to the labors of Herbart, Beneke, and their followers in Germany. Yet I am disposed to think that in England and America more is made of the psychological basis of education. Possibly this is due to the circumstance that we are not greatly enamored of systems, and have never developed a systematic *corpus* of pedagogic doctrine after the manner of the Germans. Dr. Bain's shrewd and instructive volume, *Education as a Science*, very happily illustrates the British dislike to what it regards as over-systematization. Thus it narrows the educational problem in a way that must seem shocking, say to a Kantian, while, within the limits so prescribed, it contents itself with working out a number of more or less disconnected applications of principle. This state of things is the psychologist's opportunity. The teacher who fights shy of cut and dried systems of "general pedagogics," will naturally turn for guidance to psychology, for the very good reason that its principles, being scientific and having been formulated without any reference to his special needs, can be fashioned by him into just as much of a system as he requires.

I believe that this turning to psychology on the part of teachers is the outcome of a sound instinct, or rather luminous intuition; and it will be my aim in the present paper to encourage them to maintain this Macedonian attitude. At the same time I have a strong impression that there is a good deal of misapprehension as to what kind of service psychology is fitted to render the young pedagogue. My experience as lecturer to teacher-students during a number of years has convinced me that these eager, enthusiastic learners, for whom I have a deep respect, and something more, expect what is unreasonable from our modern, much-talked-of science of psychology. They too often imagine that it is going to furnish them with a packet of useful recipes, which they have only to get up and their work will be rendered simple and easy like that of the cook with the unfailing memory. They need a guide to the psychological guide, if I may say so; somebody who will explain to them what psychology will do, and what it just as certainly will not do, in the way of disentangling the knotty problems of the schoolroom.

As might have been expected, this excessive leaning on the psychological staff has led to a reaction among the more enlightened educationists. There seems at this moment to be a good deal of skepticism abroad as to the value of psychological principles to the teacher. This skepticism is, in part, nothing but the outcome of that prejudice against everything in the shape of a scientific principle which is supposed to indicate special vigor of practical instinct. At least this applies to the unbelief, or, what is perhaps still more provoking to the enthusiast, the half-belief of head masters and others in England. Yet the reaction I speak of is something different from the resistance of practical instinct to scientific instruction. In this REVIEW, for example, we have had the significant spectacle of a trained psychologist setting himself to show that psychological principles cannot be directly applied to the concrete, ever-varying problems of education.[1] I believe that this view is shared by many thoughtful educationists, and that there is a tendency to look at psychological truths as trivial, commonplace, and unworthy of patient and prolonged study.

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[1] I refer more particularly to the two articles on the theme "Is there a Science of Education?" in the EDUCATIONAL REVIEW, January and February, 1891.

It is the special object of this paper to show that this under-trust in psychology is even less justifiable than the over-trust of the enthusiastic student. I shall try to make clear that while it is foolish to expect that a science so general and abstract as psychology can supply us offhand, after the manner of a logical machine, with the solution of any particular problem submitted to it, it is very far indeed from being a mere collection of useless commonplaces having no value as *directly regulative of educational practice.* I shall attempt to reconcile the opposite views by proving that psychology supplies to the teacher principles of a very high regulative value, though the application of them to the concrete problems of education requires a good deal of intelligence and skill.

I may assume it as generally recognized that psychology, if it comes in at all upon the pedagogic scene, does so only when we have made up our minds what we are driving at, and want to know how we are to set to work so as to realize this aim. Psychology can only tell us how minds behave, according to what laws they grow. As Herbart pungently put it, psychology will help the bad educator to attain his aim just as readily as it helps the good.[2] That is to say, all that psychology can do is to justify the educational appliances that we are bringing to bear, the mental action that we are setting up, by explaining the effects of this action on the growing mind.

Now, without making any extravagant claims for the science, I think that no one versed in its latest developments can doubt that it is in a position to give the teacher a certain amount of solid and accurate information respecting these matters. I am here referring to what is peculiarly modern psychology; that is to say, a science of mind which views its processes in their connection with brain-action, which seeks to explain its growth by help of the latest results of biological research, and which aims at exactness of result by means of rigorously conditioned experiments. Thus the laws of the correlation of mind and body in their successive phases of development are of the very highest value, and indeed a matter of supreme necessity to every teacher who wishes to avoid disastrous consequences to mind and body alike. In close connection with this I would emphasize the newer biological conception of the child. How full of meaning for the educator is such a discovery as that of Dr. Robinson, that a new-born babe can support itself by its hands for a minute or more. We are rapidly coming to see that the infant brings with it rudimentary traces of its animal descent; that it is as yet merely a bundle of inherited potentialities of very unequal antiquity and corresponding degree of stability, and that it is for its environment to determine which of these shall fail from disuse, which shall be developed, and to what degree of strength and completeness. Does it not invest the problem of education with a new gravity to know that we are selecting what is best worth preserving from a multitude of mind-rudiments, that we are singling out what is precious, because human, from its *entourage* of brute instincts? Rousseau's idea of a perfect creature deposited in our hands by its creator for us to let grow according to its beautiful natural bent, is pretty enough, but it surely robs the function of the educator of a large part of its dignity.

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[2] "A merely psychological pedagogic can tell the bad just as well as the good educator what he is accomplishing: it can be used by each for his own objects."—*Briefe über die Anwendung der Psychologie auf die Pädagogik.*

Under this biological view of the child we must include what is perhaps the most valuable contribution yet made by science to pedagogics, namely, the theory of individual development, physical and mental. Children's minds exhibit so many variations, in their mode of expanding, that it requires some little attention to recognize the fact that there is a typical plan of growth, that all normal minds run through a similar course of expansion, and that the successive phases of this typical course are determined by organic laws, more particularly the laws of development of the nervous system. Some of these laws are still very imperfectly understood; for example, the temporal order in which inherited nervous dispositions, such as those underlying particular aptitudes and tastes and particular moral proclivities, become active; yet we already know enough about the general course of things in the life-history of the human organism to save us, if we are only wise, from a good half of the blunders of certain "methods" of intellectual and moral instruction.

And, here, I should like to add a word to what Professor Royce has written, in the articles already referred to, respecting that new scientific observation of the manifestations of mind in the child so well represented by Professor W. Preyer's now classical monograph. The special object of these investigations is to fix the precise date of the appearance of new mental acquisitions, such as movements of the eyes, hands, use of words, etc., and also the rate of improvement of these acquisitions. Such observations, when sufficiently multiplied to enable us to discount individual peculiarities, will help more than anything else in the formulation of a precise theory of the typical plan of development. If now we come to those psychical exercises by which the normal growth of human minds takes place, we find that here, too, psychology can help us with definite laws. Let me in this connection remind the reader of the new light which experiment is throwing on the simple and fundamental type of mental activity, attention to the presentations of sense. Surely, if there is one process which a teacher needs to understand, it is the response of the mind to an external signal. How rich in pedagogic suggestions is the fact brought to light in these researches, that when the mind is beforehand poised or focused for a particular impression, the process of clear apprehension is reduced to minimal limits of time. May not all teaching be said to accomplish its purpose by exciting the favorable attitude of expectancy, that alertness of mental pose which expedites the hearing of the exact word, the seizing of the precise point of the question, and so forth?

In close connection with the process of attention we have the exercise of discrimination and assimilation; or, as it is sometimes called, recognition. Here, again, the new experimental psychology is bringing out results full of importance to the teacher. For example, by help of recent experiments the effect of practice in improving a person's power of discriminating the finer *nuances* of colors, tones, etc., is being reduced to something like an exact law. In recognition again, we are coming to see how the rapidity of the process, as when we recognize an object presented to the eye for only a fraction of a second, is affected by such circumstances as the simplicity or complexity of the object presented, the interval of time that has elapsed since it was last presented, and so forth. In this way we are learning the conditions of recognition to an extent that must have important bearings on pedagogic method; for example, in lessons on the alphabet, and on the musical scale. One phase of this process of recognition has a peculiar pedagogic interest; I refer to the effect of repeated presentation on the attention. As every thoughtful teacher knows, to repeat an impression—*e. g.*, to show an object a second or third time, to reintroduce a quotation—will under certain circumstances arouse the pupil's attention. Indeed, the rule that in presenting new intellectual material to the learner we ought to bring out all its latent familiarity by tracing out its analogies to known facts, proceeds on this principle. As Herbart emphatically and perhaps exaggeratedly put it, we attend to that which our minds can assimilate or appreciate. On the other hand, frequent repetition, as in showing a pictorial illustration over and over again, so far from rousing interest, is wearisome. What the teacher specially requires to know, therefore, is the precise conditions which underlie these opposite effects. It may be expected that experimental psychology will soon come to his assistance by determining the limits within which each of the effects occurs.

Other directions of this new psychical activity full of promise for the teachers are the investigation of the processes of association, of the effect of repetition on reproduction. Some of Professor Ebbinghaus's conclusions on this point look, indeed, as if they had been specially prepared for the schoolroom. How important, for pedagogic purposes, is the result reached by him in estimating the time needed for committing to memory a series of syllables, that three repetitions to-day reduce by one; the number of repetitions required for learning to-morrow in other words that a given amount of memory-work got through at a particular time effects a saving of about one-third of this amount on the taking up of this work twenty-four hours later.[3]

I have here confined myself to the new experimental investigations of one side of mental activity, namely, the intellectual processes. If space allowed, much might be said on other branches of psychological inquiry, for instance, that which specially investigates the first manifestations of such instinctive feelings and impulses as fear of animals and strangers, the primitive forms of movement carried out by the hands, and so forth. There is reason to hope that a more careful scientific observation of children, aided by biological theory, will one day supply the teacher with a natural history of the child's character just as definite and complete as the natural history of its intelligence.

In this elucidation of the educational bearings of our newest psychology, I have touched only those departments of the science which deal with the normal pattern and mode of growth of the child-mind. In addition to these, there are other branches which specially investigate deviations from the normal type of mind. Certain portions of this "pathology of mind" also will be found to be of the highest consequence to the educator. I need only refer to what is now known respecting the varieties and causes of disturbances of memory and of volition—a subject well illustrated in Professor Th. Ribot's well-known monographs. The fluctuations to which childish life are in a special degree subject are apt to betray themselves in slight disturbances of normal brain-functions similar in kind to those which appear on a large scale in abnormal conditions of mind. Indeed it seems to be coming to be recognized that the educator requires almost as much a knowledge of the mind's pathology as of its physiology.

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[3] See his interesting volume *Über das Gedächtniss*, especially p. 78 and following.

Enough has probably been said to illustrate my point, which is that psychology, as now studied, comes at a vast number of points into close organic contact with the problems of the educator. Indeed, I can well imagine that some of my readers may be disposed to accuse me of having proved too much; of having set up the unreasonable because impracticable demand that the teacher should acquaint himself with a whole aggregate of exceedingly complex and difficult branches of scientific research. I do not greatly care if this last is the impression left in the reader's mind. If only the existence of the points of contact be recognized, I have little doubt that a way will be found of bringing the most important results of these scientific departments within the reach of the teacher.

But my work is not yet done. It has still to be shown that the kind of guidance which these psychological principles supply is of real practical value. And here I should like to meet the argument that the truths of psychology are of too wide and general a character to be of any direct service in the practical work of education. This is, I conceive, an error involving a misunderstanding of the true relation of scientific principles to practice. Let us take the well-known laws of memory, such as the effects of interest, repetition, and association. These are indubitably laws of the very widest operation. They happen, moreover, to be the formulation of truths which have become a part of the common knowledge of educated people, and hence are apt to strike the student as commonplace. Yet I will make bold to say that almost any school you chanced to enter would supply you with examples of the violation of these simple self-evident principles. For be it noted (and this is the essential point) that when we talk of applying psychological principles to teaching we mean that the teacher is making the utmost use of these principles, that is to say, is producing his result most rapidly, most economically, according to the requirements of these principles.

Hence all exercise of the memory, as in teaching the rules of a language, which involves more time and more fatigue than it need do, may be described as psychologically wrong.

But how shall we know when we have lighted on the most efficient way? Here comes in the part of the pedagogue himself—of the teacher of pedagogy first, and then of the learner. A principle may be clear and definite enough in itself, yet before we can get any practical help from it we may have to take a good deal of trouble in the shape of thinking out its particular applications. The real business of the teacher of pedagogy is to take principles from the psychologist, and to clothe them with concrete and practical illustrations. Unless this be done the knowledge of the principle is useless, if indeed it is not positively harmful by deluding its possessor into supposing that he possesses an educational compass. I fear that too many of our young teachers, who get up their psychology hastily for examination purposes, remain mere memorizers of barren scientific formulas; that they have no inkling of the manifold, far-reaching, all-pervading application of these simple laws to the concrete work of teaching. A good deal more time must be expended on exercising our young teachers during their student-course in this application of principle. How much thinking, for instance, must a student go through before he can recognize even the more important practical corollaries of the self-evident, trite principle: attention must be excited and understanding furthered by connecting new and unknown facts with what is already known. A short course of lectures might with profit be devoted to the work of testing current methods of teaching by reference to this principle alone.

So much for the objection that scientific principles are of too general a character to be of any real working value. No doubt, so long as they retain the form of abstract scientific propositions, they seem to be apart from our practical interests and aims, floating in the upper air. But our business is precisely to bring them down from this altitude to the level of our workaday world, to transform them into the practical shape of rules; and this business requires almost as much patient thinking out as the original discovery of the principles.

Another difficulty remains. Psychology is at best a reasoned account of the common or typical mind; every teacher, however, has to do with particular samples of the individual mind. Hence, it is argued, psychology can never be of any considerable service in working out the actual problems of education. Let us for a moment try to grapple with this objection, which, on first sight, seems so formidable as to block the way to all thought of a psychological pedagogy.

First of all, then, I would point out that there is an illusory appearance of gravity in this objection. There are not two sorts of mind, the general mind and the individual mind, having nothing whatever to do with one another. Even Plato allowed that the poor perishable particulars participated in the universal reality. A child is a particular embodiment and illustration of the common characters and common laws of the human mind, and the educator has always to think of the child primarily and mainly under this aspect. That is to say, what the educator is most concerned with is to develop in each of his pupils the common pattern of what we call a complete normal mind. To this extent the laws of mind, so far from being useless to him by reason of their general character, owe their main utility to this very circumstance. The truth of this proposition may be seen at once by considering how the value of psychological observation disappears as soon as we are in any doubt as to the general validity of the conclusion drawn. A frequent objection on the part of teachers to a careful record of the development of an individual child, as that of Professor Preyer, is that the results reached may not be found to hold good of all children. In other words, what the teacher requires is such an account of the processes of mind as will be found to include any particular minds which he may be called upon to deal with. It is not, then, the universality of psychological truths that stands in the way of our employing them as guides in our educational work. Universal principles, that is to say principles valid for all cases alike without respect of person, are precisely what we need; even though, as I have tried to show, a good deal of concrete elaboration may be necessary before the full fruition of their practical helpfulness is possible.

Nevertheless, while I would thus emphasize the fact that a theory of education, if it is to be of wide applicability, must be based on general laws of mind, I am fully aware that a large part of the business of the teacher is, or rather ought to be, the understanding and the managing of the distinctive peculiarities of this, that, and the other individual child. The almost infinite diversity of childhood, its capacity of giving us ever new surprises in the way of unclassifiable traits or groups of traits, is at once the glory of our race and the despair of its pedagogues. Education, though aiming first and mainly at realization of type, dare not for a moment lose sight of the fact that humanity can only realize itself through a rich diversity of intelligence and character. Hence every individual child ought to be made the subject of a profound, searching study, as thoroughly penetrating as that given by the savant to some new and priceless specimen on which he intends to write a monograph. The weakest point in our modern system of school education, with its large classes, its concentration of vision on collective results, its subordination to the inspector and the examiner—each of whom, like Nature, is apt to be "careless of the single life"—is that the teacher does not know his individual children, and hardly makes a pretense of cultivating their special and distinctive capabilities.

And here, if I may be allowed a moment's digression, I should like to say that I would gladly banish the expression "the average child" from contemporary pedagogic literature; it is the product of an age which cares only about things in the lump, which is over-hasty in snatching at results, and consequently mechanical and inelastic in its mode of procedure. The ideal man, the ideal woman, whom, so far as we are truly educators, we must seek to develop in the child is, as Jean Paul has taught us, an ideal individual.

This being so, I consider it obligatory on anyone who would claim for psychology a high degree of pedagogic utility to show that the science can assist in the educational study and development of the individual child.

There are two ways of getting at an individual mind, which we may roughly distinguish as the intuitive and the analytic or scientific way. The former is illustrated in the shrewd insight of a lawyer into the mind of his client, and in the far deeper understanding which sympathy gives into the mind of a friend. It is the direct product of observation, unreflective, surprisingly exact up to a certain point, but apt to be narrowly limited. In contradistinction to this, the analytical study of another's mind not only observes but carefully takes apart and classifies what it observes. Sympathy in all its higher forms, by prompting to understanding, takes a step in the direction of such analysis. It is curious, indeed, to note how much time a warm-hearted, intelligent woman is ready to devote to discussing the several peculiarities of a friend's character. Here, it is evident, analysis, that is selective attention to particular constituent features, plays a certain part. Yet this sympathetic penetration, fine as it sometimes is, does not amount to scientific analysis. This last implies that the constituents specially attended to are selected because of their elementary character and fundamental importance, and not merely on account of their æsthetic or practical interest to the observer; and further, that there is at least an approach to an exact measurement of the capacities considered. All observation which can be reduced to an accurate descriptive form, as that in botany, illustrates this analytic process.

Now it is certain that a good deal of education of individual character has been carried out solely by the first or intuitive way of studying minds. An extraordinarily fine sympathy has sometimes given a teacher such a full luminous insight into the possibilities of a child's nature as to lead him straight to the right method of developing that nature. Yet this kind of insight is not enough. It knows nothing of the distinction of the elementary and the complex, the original and the derivative; it does not understand how a particular faculty or aptitude is put together, and it takes no measurement of the exact strength of the endowment as compared with that of other tendencies in the same child.

The advantage of a scientific or analytic study of a child's mind is that it compels us to be exact, to count up the sum of forces which confronts us, and to measure one against another. Thus, if I am proceeding in the scientific way, I shall not be content to discover that a particular child is observant; I shall take pains to find out what constituents of the so-called observing faculty are specially strong, and what others relatively weak—whether, for example, the child has a special field of interest within the limits of which it is observant—so as to know precisely the extent of its observation. A careful minute examination of individual aptitudes and tendencies, such as is required for an intelligent cultivation of individuality, will require us to subject the child to certain measurements, as the very useful anthropometric tests invented by Mr. Galton.

I have assumed that the educator is concerned merely to ascertain the original instinctive powers and dispositions of a particular child. But in truth his problem is a larger one than this. He needs to study the child's mind as a changing mind, modified by surrounding influences and by its own activities. Thus, even in the preliminary inquiry at the beginning of school-life, some attention ought to be paid to the factors of the home-life, and the effect of these on intellect and character. And after school-life has begun there should be something like a regular observation of change, and a registering of the successive changes in the form of a life-history. Only by a methodical series of observations of this kind can the educator hope to ascertain with some approach to certainty the precise effect of particular lines of school-activity, particular class-surroundings, and so forth, on the individual.

Enough has probably been said to show that sympathetic understanding of childhood, valuable and indeed essential as it is, is not enough for grappling with the problem of adjusting the educational process to the special needs of a particular child. The teacher must temper the warmth of sympathy with the attitude of cold scientific scrutiny. He must be ready to pierce and divide the living, lovable mind before him with the analytic scalpel so as to see its peculiar structure, the special disposition of its elementary cells and fibers.

And here comes in a new use of psychology. For in this analytical investigation of individual minds we are, it is evident, calling in the aid of general psychological distinctions. In order to single out any elementary factor of mind for special observation and measurement, I must have acquainted myself previously with the general constitution of mind, that is to say, I must have gone through a course of analytic psychology.

It would seem, then, after all, that psychology has something to do with the individual and the concrete. Though primarily, on account of the processes of mind under their common aspect, it puts us on the right track for ascertaining the peculiarities of X's mind, Y's mind, and the rest. And the explanation of the paradox is simple enough. What we call an individual mind is constituted by some special, and probably unique, grouping of certain common elementary forces or tendencies. Thus A B's intelligence is made what it is by the sum of his sense-discriminations, his retentions, and so forth. Accordingly, our only chance of getting a definite idea of the pattern of such an individual mind is to apply to it our general method of psychological analysis, so as to successively investigate the strength of each of the fundamental constituents.

And here I should like to add that the same experimental psychology which is helping us to understand the common type of mind is also pointing the way to a more penetrating and fruitful investigation of individual characteristics. The attempts to measure the elementary mental processes have brought to light the fact that they are subject to certain variations in the cases of different minds. Thus the limits of discrimination of tones, colors, and so forth, vary considerably as we pass from one individual mind to another. The same apparatus and the same methods of investigation which are being used to elucidate the common mode of working of our minds can be just as well made use of in a comparative measurement of individual minds. I think, indeed, that the time has come when the educator may look to the psychologist for direct guidance in this important part of his work, viz., the more precise determination of the particular capabilities of his individual pupils.

I may, no doubt, seem to be setting up a preposterous claim on the part of psychology. Life is short, it will be said, and the teacher must know other things besides the laws of mind. I am fully aware of all this. I agree with those who say that a study of psychology by itself will never make a person an intelligent teacher. There must be experience and trained practical skill, there must further be some knowledge of the past history both of educational thought and of actual systems of tuition. Yet I do most certainly contend that next to practical capabilities, including such familiar yet all too rare qualities as common sense, tact, and sympathy with child-life, psychological study of the kind here indicated, that is to say study of principles in their deductive application to the concrete problems of the schoolroom, is the one thing needful. And I will bring my plea to a close by expressing the hope that the time is not far off when all Normal Schools and Training Colleges will insist on testing their students, not merely in the critical application of psychological principles to general methods of instruction, but in the turning of psychological analysis to practical account in a methodical observation and tabulation of the distinguishing mental characteristics of individual children.

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II

NORMAL TRAINING IN WOMEN'S COLLEGES

It is now a little more than twenty-five years since a college for women was founded in the United States. From the first the new enterprise attained a high degree of success, whether as measured by popular appreciation or as tested by the strictest scrutiny of its results; and in the face of the fast increasing demands of the older colleges, and in spite of skepticism and incredulity, the educational system of the United States has been rapidly and strongly developed along the line thus taken. Without considering the coeducational institutions at the West and South, we already have a goodly number of colleges for women alone, well endowed and equipped, largely attended and of excellent repute for scholarship. The American people may thus be said to have had a quarter-century's experience, upon a pretty wide scale, of these educational advantages. The length of that period has afforded opportunity for ascertaining whatever defects and limitations may have existed in this type of institution as first founded; and its close offers an appropriate occasion for inquiring whether important alterations require to be made, in the interest of the pupils especially concerned, or in the interest of the general community.

Since the first colleges for women were founded, great changes, economic and social, peculiarly affecting the condition of women, have taken place in the life of our people. Do these changes require any considerable alteration in the general scheme of education for the young women of America—any alteration, that is, farther than would be involved in the natural development of that scheme according to its original idea, and in the general, gradual movement of college discipline and training for students of either sex indifferently? Changes have, indeed, been seen to be required. and some of them have been more or less rapidly effected in colleges for women and in colleges for men; but has any reason for change appeared which peculiarly affects the former class?

And, first, what was the scheme of education adopted in the several institutions of this kind which came into existence during the period in question? Speaking generally, it was nearly identical with that which had long been tried and approved in the education of young men. So far is this true that it has become a familiar claim, on the part of the more ambitious of the new colleges, that their curriculum is in all respects coextensive and equally difficult with that of men's colleges.

I shall not pause to inquire whether this object was in itself desirable; whether young women should be called upon to do in four years all which young men may, for their good, be required to do in the same time; whether exceptional consideration be not due to the greater delicacy, sensitiveness, and liability to nervous derangement on the part of the female sex. I shall not even stop to ask whether this claim was ever, anywhere, made good, except in the case of highly selected bodies of young women; or whether, through conscious or unconscious relaxations of the nominal requirements, the work exacted, in even the most advanced of the women's colleges, has not, in fact, mercifully fallen somewhat below a full equivalent of that done in the other class of institutions. I desire here only to note the fact that such a claim has been freely and widely made, as corroborating the statement that, in general, the scheme of education for women adopted twenty-five or twenty years ago, was substantially that which had been approved for the training of young men.

One exception, indeed, requires to be taken to the assertion that the curriculum of the new institutions was meant to be, alike in substance and in form, identical with the traditional curriculum of the American college. This exception relates to the studies and exercises having reference to the preparation of the student for public speaking. But even this modification was in a direction already clearly indicated among the men's colleges themselves by the gradual decay and disuse of declamation and debate. This has steadily gone forward since that time, until now, in the most advanced of the older institutions, preparation for public speaking, and even for public writing, is given but little attention. So that we may fairly say that, in the most important respect of their original difference, the colleges for men have come to the colleges for women.

The changes which I have referred to as occurring peculiarly to affect the condition of women, within the period since these colleges were founded, are:

First, the greater call for women to interest themselves in public affairs; and

Secondly, the procrastination of marriage and the restriction of the marrying class, throwing upon women, in a degree before unknown, the necessity of independent self-support.

In speaking of the greater call for women to take part in public affairs, I have no reference to the current agitation for female suffrage. Altogether irrespective of this is the peremptory demand upon the educated members of that sex, in these later days, to concern themselves with matters once wholly managed by men. In addition to the rapidly growing freedom with which women are admitted to school boards and committees, and to a participation in the management of public institutions of charity and beneficence, one has only to look about him, in his own town or city, and see what the educated women of the community are doing; one has, indeed, only to peer (by permission, of course) into the engagement book of his wife, sister, or daughter, to get a somewhat startling view of the enlarged activity of the woman of to-day, making a demand upon her, if those duties are to be well performed, if, indeed, her accession to no inconsiderable part of man's traditional work is not to be injurious rather than beneficial, for more training and an ampler equipment upon that side than was required, or was possible, a quarter of a century ago.

But this want has not been left thus long to be supplied. Men's colleges and women's colleges together have, during the whole of the period in question, been applying themselves to do that which will largely meet this need of the times. Not, indeed, that the colleges have generally made any considerable changes in their curriculum professedly, or perhaps even consciously, in the interest of a better preparation of either women or men for public affairs. The changes in this direction which have taken place have been made because the tendency in education, upon purely educational grounds, has, of recent years, set strongly and steadily toward those studies and exercises which are of a nature peculiarly to qualify the student for social and political duties.

The assertion that the changes in the curriculum of the American college which have so fortunately met the freshly developed want in education on woman's side, have not been due to such a purpose, or even to an unconscious recognition of the new need, may perhaps be questioned; but I believe it to be true. Even in men's colleges, the rapid extension during the past twenty years, one might almost say, the first introduction within that period, of history, economics, and statistics, has not come from the desire on the part of teachers and administrators to fit their pupils better for public duties. It has taken place because history, economics, and statistics had, in the course of educational development, become studies which would crowd themselves into the colleges, whether or no; which could no longer be kept out; which made an imperative demand for room in every institution devoted to liberal arts. Before that time those studies, as known in the United States, had not their methods developed—had not their qualified teachers. Those methods were not developed, those teachers were not trained, because either American women or American men needed such studies to fit them for the social and political life of their country. Those methods were, in fact, not developed, those teachers were not trained, here in America at all. It was abroad, it was in Germany, where those studies were pursued as a necessary part of a great and comprehensive scheme of intellectual cultivation, that this was done.

History, economics, and statistics became college studies in America, not because the want of them was consciously felt more than at any previous time in our history, not at all because the need of them had then first specially appeared in the education of women, but because those studies had, under altogether other and foreign impulses, assumed an educational character which made it impossible to keep them out of any institution assuming to offer a liberal training, and because a host of young Americans, taught in the universities of Germany, were returning to their native land as the missionaries of the new cult.

But whether we adopt or reject this view of the cause of the rapid rise and growth of the historical and political sciences in our institutions of learning generally, it certainly cannot be claimed that the result was, in any degree, due to the newly developed want of women's colleges. Nevertheless, that want, thus suddenly occurring, has been most fortunately supplied by those studies making their appearance, very opportunely, it must be confessed. Although history, economics, and statistics first came into America through the colleges for men, they rapidly made their way into the women's colleges, so that now, in the most advanced of these, the new studies are cultivated almost as assiduously as in the institutions for the other sex; and this movement is still in progress. The catalogues of women's colleges show an increasing disposition toward the further recognition of the historical and political sciences as instruments of liberal culture.

I think we may conclude, then, that the change upon what we may call the political side, in the condition of American women does not call for any important alteration of the curriculum, other than has been involved, to use my own phrase on starting out, "in the natural development of the scheme according to its original idea, or in the general gradual development of college discipline and training for students of either sex indifferently." The required modification has, in fact, already taken place, not at all with reference to the special needs of American women, but under the general educational impulse of the age.

It is a more serious and difficult question, whether the other change which has been indicated as affecting the condition of women, through the procrastination of marriage and the restriction of the marrying class, especially among the educated and cultivated portion of the community, throwing upon women, in a degree never before known, the necessity of independent self-support, does not call for extensive modifications of the curriculum as established when these colleges were instituted. The reasonable expectations, the usual prospects for life with which young women went to college when that opportunity was first offered them, were widely different from what they now are. Not only is the time of marriage long procrastinated, not only is the proportion of celibates increasing throughout the total population, but among the educated and cultivated classes these tendencies are felt with a force which is rapidly changing our social ideas in many particulars, and is fast bringing in new economic conditions.

Here again, however, a modification of the college curriculum, under the general educational influence of the age, and not at all for the purpose of meeting the newly developed need in woman's training, has actually, to a considerable extent, taken place, of a nature to supply that want. Chemistry and physics have become important studies at the leading colleges for men during the past ten or fifteen years, not because it was expected that the students would use these sciences professionally, but because these sciences had assumed an importance, educationally, which would not allow them to be longer kept out, or, if admitted, to be confined to the petty proportions of thirty years ago. For the same reason, and no other, chemistry and physics have extended themselves rapidly to women's colleges, and are every year asserting themselves more and more in the curriculum and the catalogue. Here again we have a development of women's colleges which was eminently opportune, although it took place without reference to the changes in the condition of women which made such a modification of the traditional courses peculiarly conducive to the training of women for independent maintenance.

The question I have now to ask is: Whether any change not in the nature of a development of the original scheme of women's colleges and not shared by the colleges for men, requires to be brought about in consideration of the increasing need which women have, in these days, for self-support. The subject is one regarding which something might doubtless be said upon both sides; yet for myself I strongly hold to the opinion that, with a single important exception to be hereafter noted, those who are charged with the administration of the higher institutions of learning for women should continue to interest themselves solely in the question, What studies and exercises will conduce most to sound mental discipline, to general culture, and to the acquisition of a considerable body of correct information upon subjects of political, social, and domestic importance, not troubling themselves at all to give their pupils industrial arts, or preparing them in any way specially and technically to enter "the market for labor." I heartily believe that, with the single possible exception to be noted, the studies and exercises prescribed for young women, in their college courses, should be purely educational; and that the time has at least not yet come when the conductors of these institutions are called upon to ask what studies and exercises will best fit young women for any special line of remunerative work.

My reasons for believing that the colleges for women, and all of them, should, at least in the present and the immediate future, confine themselves to the proper college function of mental discipline and mental development, are as follows:

First. Because the presumption is still happily, in spite of all, largely in favor of the ultimate devotion of woman's powers and faculties to domestic life and duties, in which general training will count for much, and special training for but little.

Secondly. Because the occupations of a business character which are as yet freely opened to that sex are generally those in which woman's tact, dexterity, and quickness of apprehension will enable her most readily to dispense with previous special or technical preparation, and in which, consequently, general training will tell to the utmost.

Thirdly. For the comparatively few women who have a strong "call" to technical professions of a severely scientific character, opportunities are already provided at several institutions of high grade which admit the members of both sexes, without discrimination.

Fourthly. For certain of the higher professions, if I may venture to call them so, in which women take a part equal, if not superior, to that taken by men, opportunities for training are now afforded in special schools, which exist in great number and in great variety, often fully equipped and well administered. To students, for example, of music, drawing, painting, and, under my breath be it spoken, of the drama, this country presents advantages as great as could reasonably be expected in a civilization as new as ours. If more is to be looked for, it must be through the progressive improvement of these special native schools or through foreign residence and study.

I now come to the one important exception, already several times intimated, which, in my opinion, requires to be made to the principle that the colleges for women should still remain, as they have been in the past, nonprofessional, wholly educational. This is, indeed, my real subject on the present occasion. That exception relates to the training of teachers. Already the leading colleges and universities for men are turning their attention to this urgent need of the times, and are establishing chairs of pedagogy for the instruction of their undergraduates in the theory and history of teaching. I believe that the colleges for women should go still further in this direction, so that each one of them shall become, in a high sense, a normal school.

The profession of teacher is not only of vital importance to the community, but it is that one of all the larger professions which is, by general consent, mainly relinquished to women. To fill the vacancies in the ranks of the teaching profession, occasioned by all causes, and to supply the additional assistants required by the growth of the country, at least twenty thousand young women should each year present themselves as qualified to undertake these onerous and responsible duties. To meet this tremendous demand, the so-called normal schools are striving with the best of their powers; but they cannot do all that is required, while much which they do is less than well done. Held down, as they are, by the presence of large numbers of pupils who are not even graduates of high schools, and obliged to devote no small part of the time and strength of their staff to elementary instruction, not in the teaching art, but in the subject-matter of what is to be taught, these schools cannot do themselves or their better pupils justice; and many of those whom they graduate are only accepted by school boards and committees because the supply is so painfully inadequate. The number of teachers for whom there is a present active demand, for giving instruction in the higher branches of learning in the secondary schools of the country, and for bringing inspiration into the more fortunately circumstanced grammar schools, would take up every year all the graduates of all our women's colleges, and more if more were to be had.

I offer, then, this plea for normal instruction and training in all colleges for women. The need of the country is so urgent that some sacrifice of the strictly educational character of these institutions might properly be submitted to, were that necessary, in order to secure a higher professional result in a department of public service so peculiarly woman's own, and so vitally important to the welfare of the people. But, in fact, I do not believe that the introduction of the studies and exercises proper to this object would impair—on the contrary, I believe it would greatly improve and highly exalt, the truly educational work of these institutions.

I would not have the colleges for women teach the mere arts of the pedagogue, which may, without offense, be called the knacks of the trade, or undertake to anticipate the necessary work of experience. But I would have the history and the philosophy of education made prime subjects of study. I would have the psychology of teaching taught. I would have the mind, in its powers of perception, observation, reflection, and expression, studied as objectively and as scientifically as specimens in natural history are studied in the classroom and the laboratory. The order of development of the human faculties, the child's way of observing, the child's way of thinking when untaught and untrained, the ways in which the child may be interested and drawn out of himself—these should be the matter of eager, interested investigation. Surely, they are as well worthy to be the subjects of study as are the processes of vegetable or animal growth, as the order in which the leaves are set upon the stem or as the mechanism of the human body.

The art of the teacher, the art of simple exposition and familiar illustration, the art of putting questions and stimulating thought—this art should be both studied and practiced, practiced and studied, year by year. I would have the pupils frequently called to assume, for a brief space, the responsibilities of instruction. I would have small classes formed to investigate problems in education, starting questions, stating propositions, adducing facts, discussing principles, consulting authorities, answering objections, under the guidance of teachers who should have their own minds directed upon the end of training their scholars, not merely to communicate thought, but to create it.

Does it seem that the dedication to such uses of a portion of the time at the command of the faculty would, in the result, interfere with the educational character of the curriculum? Would not the remainder of the four years' course be worth, even for mere acquisition alone, as much as the whole formerly was? I surely think so. I believe that what has been suggested is the very thing most needed to give its best effect to the studies in classics, philosophy, mathematics, natural science, history, and politics, which make up the traditional courses of our colleges.

That such a training would fit the graduates of women's colleges to take up the work of the teacher with great advantage, no one will question. They might at first be found to be, in mere smartness, glibness, self-confidence, and ease of bearing, behind the graduates of the typical normal school; but their broader scholarship and higher culture would qualify them, in a far greater degree, to reap the fruits of experience, and they could not fail, after a brief period of apprenticeship, to take their place among the most useful members of the profession.

But what of those who are not destined to enter the ranks of that profession, but are to find their life's work at home, in the domestic circle? Need the question be asked? Could any nobler preparation for the duties of wife and mother be devised than that which I have thus outlined? Surely, this part of the college training would never run to waste. The Latin and Greek might be unused and soon forgotten; but the hearts and minds of the next generation would be inexpressibly benefited by the gracious fruits of studies and exercises like those indicated.

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III

HABITUAL POSTURES OF SCHOOL CHILDREN

> "How use doth breed a habit in a man."
> —SHAKSPERE, *Two Gentlemen of Verona*, v. 4.

Habit is the repetition in a more or less involuntary manner of an act originally performed with some degree of volition. Among the forces which dominate human beings, there is none more potent than habit. Education, in essence, is intellectual growth through repetition. The child voluntarily repeats his task, until he is able to recall it with slight volitional effort. With what clumsy fingers the pianist strikes the keys until, by a multitude of repetitions in which brain cells and muscles have co-ordinated, he acquires the facility wherewith to charm his listeners!

The influence of habit upon the development of moral character is well understood by parents and educators. The repetition of physical postures and movements has the power, in a similar way, to modify and recast the shape of the body.

Physical beauty depends largely upon the element of physical symmetry. It is worth while, therefore, to study postures which tend to maintain bodily symmetry, if only for the purpose of enhancing personal attractiveness. Add the further fact, that physical health depends largely upon the maintenance of bodily symmetry, and the subject becomes one of practical importance, not only to parents and teachers, but to all men.

In the following pages I shall present the results of a careful study of the influence of habitual postures upon the shape and health of the body, leaving for the present the other and equally important element of symmetry, namely, the influence of habitual movements. In order to present the subject in a practical manner, it will be necessary to study the mechanics, so to speak, of the various postures which the body naturally takes, standing, sitting, and lying. By this means we shall be able to decide which postures it is safe to permit to become habitual, and which ones tend to loss of symmetry.

In standing, the lower extremities are placed beneath the trunk in one of three ways. All others in which equilibrium is attained are modifications of these.

First. With both extremities placed evenly beneath the trunk. (Fig. 1.)

Second. With one leg supporting the trunk, and the other thrown forward, as in walking. (Fig. 2.)

Third. With one leg supporting the trunk, and the other thrown to the side. (Fig. 3.)

In the first position, the trunk is evenly poised upon its supports, with all its parts symmetrically placed. This would be a proper one to assume habitually, were it not that it keeps both extremities in muscular activity at the same time, whereas they demand the privilege of working alternately. Involuntarily one support drops out from under the weight, and the position changes to the third, which, as will be shown later, is an objectionable one.

The second position, namely, with one leg in advance of the other, as in walking, permits the body to rest upon one extremity, with very slight reduction of the normal spinal curves. The bones of the skeleton are all so placed in this posture as to retain the muscles in normal symmetrical relations as regards the distance between their origin and attachment, the direction of their fibers, etc. The backward movement of the head and shoulders to balance the weight of the forward leg, calls into action the muscles of the back and shoulders, while those upon the front of the body are placed in an equal degree of extension. The influence of this is to place the chest in a position favorable to respiration; hence this posture is conducive to chest expansion. The head cannot drop to either side without disturbing the equilibrium of the body, and the soft tissues of the face retain their symmetry. The ease with which the weight of the trunk can be transferred from one extremity to the other, makes this a

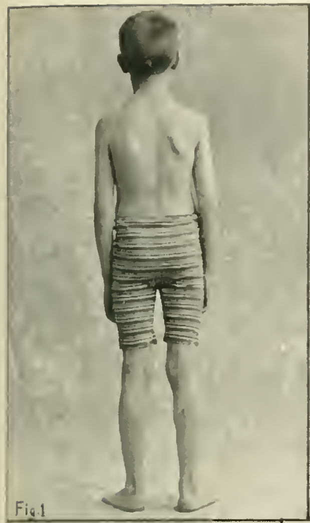
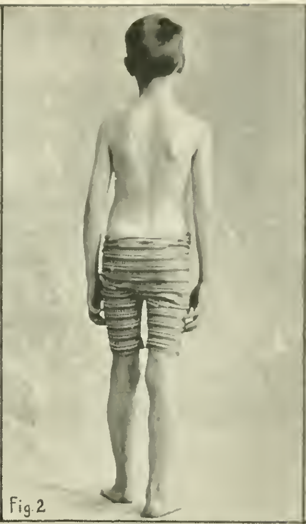


Fig. 1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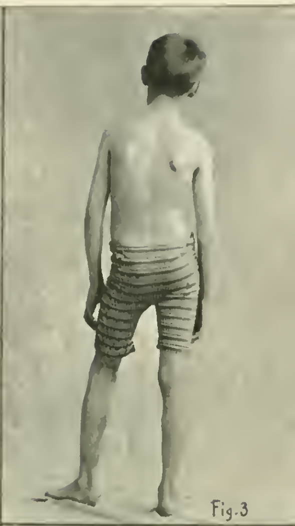
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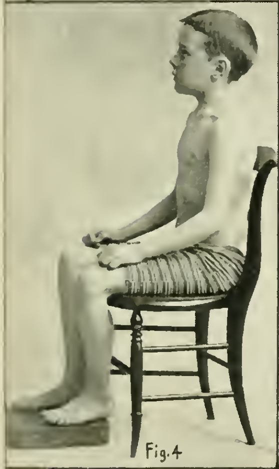
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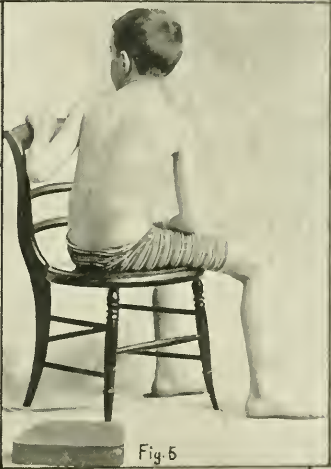
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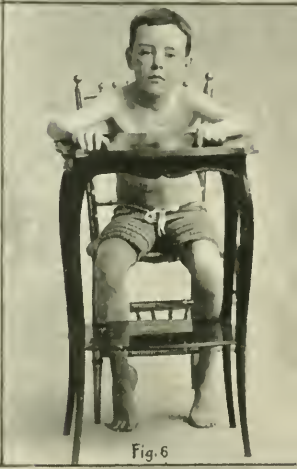
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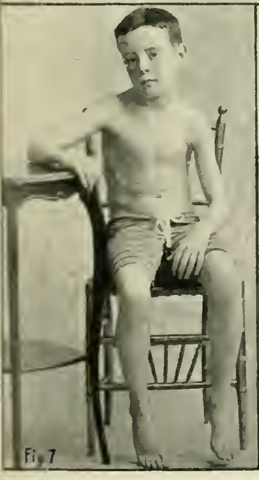
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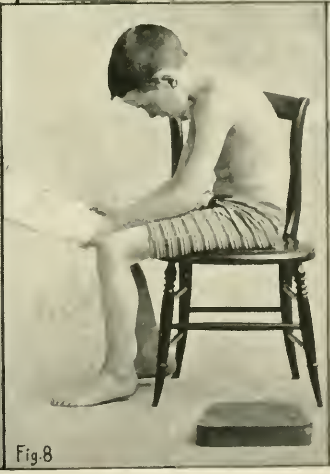
Fig. 8

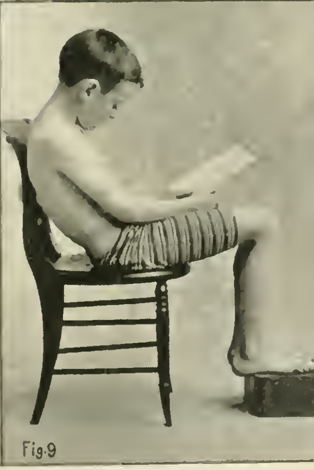
Fig. 9

position which can be retained a long time without undue fatigue, and which renders it favorable to the making of gestures and the use of the voice; hence it naturally becomes the favorite posture of the orator and the public singer. Because of the narrow base which it gives to the body, however, and the corresponding sense of insecurity which the individual unaccustomed to it feels, this is not a posture naturally chosen; but with a stable foundation beneath the feet, it is one easy to assume, and children should be taught to fall into it habitually.

The third posture in standing is the one most commonly chosen, doubtless because of the broader base which it gives for the support of the trunk when needed. The change, also, from the walking posture to this, is so radical that it gives a sense of rest most grateful to the tired tissues.

The best way to make a critical study of this position with relation to its healthful tendencies or otherwise, is to examine an individual whose occupation has, for several years, necessitated the standing posture, and who has acquired the habit of dropping upon one and the same leg.

Understanding symmetry to mean "exact accordance of the two halves of one body," we place the person to be studied evenly upon both feet, and compare the two sides. We find in most cases the following variations, more or less well marked according to the general health of the individual, and the length of time the posture has been habitual: (In robust persons the muscles and soft tissues are not molded by posture as readily as in the poorly nourished and overworked.)

If the left extremity has been the favorite one (as it often is), the left thigh will measure in circumference a little more than its fellow. The left hip will be found higher than the right, and the spinal column slightly curved laterally, presenting its concavity toward the supported side.

In all cases there is marked projection of the angles of the ribs upon the unsupported side, indicating more or less turning of the bodies of the spinal vertebræ in that direction.

The ribs upon the left side approach each other and the top of the hip, shortening in a very marked manner the body line upon that side; the spaces between the ribs on the right side are proportionately widened, and the lengthened body line lacks the curve presented by the opposite side. The left shoulder is lower than the right; the left hand accordingly reaches a lower point upon the thigh than does its fellow. The head drops toward the left shoulder (to aid the shoulder and arm in balancing the weight of the unused leg), while the chin points in the opposite direction. There is marked loss of symmetry between the two sides of the face, produced by the influence of gravitation and unequal muscular activity. Unmodified by defects of sight or hearing, or by a variation in the length of the extremities, the lines of the face always manifest the following deviations from the normal, in all cases where this position has become a habit: The angle of the jaw becomes the lowest portion of the face, hence the soft tissues of the cheeks gravitate in that direction, producing a rounded contour on the lower side, in contrast with the flattened outline of the opposite cheek. The angle of the mouth usually drops a little; sometimes, however, it becomes elevated instead. The median line of the nose frequently inclines to the left as it approaches the tip, and the nostril is drawn upward, shortening the distance between the angle of the nose and the eye, as compared with the corresponding line on the opposite side. The left nostril is also dilated more than on the right, upon which side the cavity of the nose is somewhat obstructed.

The cheek fold becomes more or less erased on the left (by gravitation of the tissues outward), while on the right the same force deepens and elongates it. The left lower lid is pulled slightly downward, increasing the breadth of the opening at the outer angle of the eye. The same tractile force applied to the right eye upon the nasal side, lengthens, or seems to lengthen, the opening, at the same time widening the space at the inner angle. Hence the left eye becomes oval, and the right eye linear in all marked cases. Lack of symmetry in the two halves of the face has long been observed by artists and photographers, but the casual observer seldom takes note of it, until his attention is called specially to the subject. The changes in the face which I have here pointed out, are all produced by carrying the head habitually on one and the same side, whatever the cause. Most often, however, it occurs as a result of standing and sitting with the trunk tilted to one side. When asymmetry is produced by defective vision, the face lines differ from those described according to the angle at which the best refraction is obtained.

The neck muscles tell the story of habitual posture more loudly, if possible, than do the lines of the face. Those which are attached to the base of the skull participate most markedly in the changes observed elsewhere.

The external muscles of the skeleton are not the only ones involved in this process of change. Those which move the eyeball are, to say the least, placed at a disadvantage in sidewise postures of the head, certain of them being forced to do more than their share in the work of rotation of the ball. No observations have as yet been made which demonstrate special abnormal conditions thus produced; but it is not unreasonable to include this posture among the causes of eye fatigue.

There is often a demonstrable decrease in the size of the chest on the side of the elevated shoulder, due, doubtless, to the changed position of the ribs and shoulder blade, to which are attached important respiratory muscles.

Shortening of the abdominal wall on the supported side, by approximation of the ribs and hip, displaces the intestines downward, and in the direction of greater space. This is specially injurious to growing girls, because of the unequal pressure thereby placed upon the movable organs within the pelvis. Habitually crowded toward the side of support, they acquire this position permanently, the result of which is an impeded circulation, and a positive tendency to pelvic disease later in life. With this array of facts before us, we recognize in this common posture, namely, with one leg supporting the trunk and the other thrown out to the side, one which we cannot too strongly deprecate.

In sitting, the body naturally assumes a variety of attitudes, which, for purposes of study, may be classified as follows:

1. With pelvis resting equally upon the chair (or other support), spinal column erect, holding the head poised upon its summit. Arms balanced on the line of the hips. (Fig. 4.)
2. The same position, with shoulders placed diagonally to the transverse diameter of the hips. (Fig. 5.)
3. Body erect with both arms supported. (Fig. 6.)
4. With one arm supported. (Fig. 7.)
5. Arms and head in front of trunk. (Fig. 8.)
6. With pelvis resting on the front of the chair, and shoulders braced against its back. (Fig 9.)

The first of these, like the first and second postures in standing, places the trunk in a symmetrical position. It is one in which gravitation largely replaces muscular activity, therefore it is economic of force. With support applied to the lower part of the back, and below the shoulder blades, it can be maintained a long time without general fatigue. It is, therefore, the position which should be acquired in early life as the habitual one in sitting.

The second posture, namely, with spinal column in rotation, is an exceedingly dangerous one if permitted to become habitual, because it places the bony segments of the spinal column in a position calculated to produce elongation of some of their connecting ligaments, with shortening of others. The muscles of the back are also used unequally, the whole tending toward production of that dreaded condition, lateral curvature of the spine. Too much care cannot be given to the prevention and correction of the habit of sitting or standing with the shoulders out of line with the hips.

The third position, namely, with both arms supported, while it is not especially detrimental to health, in time destroys beauty of figure. The trunk is, in shape, an inverted pyramid, poised upon a pedestal—the pelvis. The arms, attached to its base, act as weights, which, by their adjustments, have power to bend and mold the pliable, pyramidal trunk almost at will. Suspended upon the side line, they balance each other. Supported, nay, pushed upward by resting upon chair-arms, or desk, they elevate the shoulder blades, with which, by virtue of their intimate union, they are practically continuous. The resultant shape betrays the habit.

The fourth posture in my classification tends to shorten the body line upon the weighted side, with the far reaching results described in connection with the third position in standing. Combine with it more or less rotation of the spine, and this attitude becomes one of serious menace, especially to growing girls.

The fifth position, or that in which the arms and head drop in front of the trunk, is also productive of evil results, if often assumed. In this position the muscles of the chest, after drawing the arms forward, remain in the position of contraction, one which is unfavorable to free inspiration. The shoulder blades are widely separated, with their posterior borders everted. The weight of the head drops upon the muscles which connect it with the spine. These, with other back muscles, become elongated and weakened by this gradual stretching process. The upper antero-posterior curve in the spinal column, under the influence of this posture, deepens, and the obliquity of the ribs increases, diminishing the capacity of the chest, and with it the vital force of the body. Furthermore, this posture tends to fold the body together upon its anterior aspect. The result of this is to crowd the contents of the abdomen backward and downward, with the secondary effect of displacing and deforming the movable and easily molded organs of the pelvis. It is easy to demonstrate, therefore, that the indulgence in this habit of posture in early life, not only produces narrow chests, round shoulders, and drooping head, but much of the ill health to which girls so often become the victims.[1]

With the pelvis slipped forward upon the chair, and shoulders braced, as in the sixth position, the weight of the trunk falls mainly upon the sacrum and coccyx. These bones are not sufficiently cushioned by flesh to protect the nerves which lie upon their surface, hence the latter are liable to become injured by the pressure thus applied. In this position, too, the normal curves of the spinal column are replaced by one long one, with its convexity presenting posteriorly. Important muscles and ligaments are thus placed unduly upon the stretch, making permanent curvature of the spine in this direction easy of occurrence in individuals of weak and lax tissues.

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[1] It is not wise to direct children to "throw their shoulders back," as in attempting to do this they assume a position which they cannot retain involuntarily. They should, instead, be directed to raise the chest, and place the shoulders and elbows upon the line of the hips.

The sitting posture, at best, is not a safe one for children and delicate individuals to occupy continuously. The influence of gravitation, however applied to the spinal column, is one which it difficult for so movable a structure to resist; so that the tendency to the production of abnormal curves is always great, and increasingly so the longer the posture obtains.

No one position in bed should be allowed to become habitual. The only one in which all the parts of the body are placed symmetrically (namely, upon the back with a low pillow beneath the head), unfortunately is not conducive to the free circulation of the blood. Side positions interfere more or less with respiratory movements, and the prone position does not allow free access of air to the nostrils; hence the importance of frequent change without indulgence in a favorite posture.

The restless activity peculiar to infancy and childhood is the guardian of physical symmetry during this period. In sleep, as well as during waking hours, the muscles keep busy turning and twisting the little structure in a way our gymnasium teachers might well emulate. Occasionally, a specially "good baby" suffers in shape, because he does not demand for himself the right to kick and cry. Through some physical defect on the part of mother or nurse, infants are sometimes held habitually upon one and the same side. Pressure thus applied unequally to the easily molded bones, is liable to produce one-sidedness of the skull and chest, and sometimes of the pelvis also, which mars the individual through life.

With school work begins confinement within doors, and to the sitting posture, with a subduing of the restless activity so long the child's safeguard. Rarely is the seat assigned the little victim so constructed as to be helpful in maintaining the body in equilibrium. A desk is placed before him, which eloquently offers support, eagerly accepted by one or both elbows, placing his body almost continuously in the third or fourth position of our classification. Should the teacher's desk and the blackboard be at his right or left, as is often the case, instead of in front of him, he is obliged, in order to give her his attention, to twist his body into the second, and most dangerous, of the sitting postures described. The old custom of requiring children to sit sidewise at the desk to write, held the body with the spine placed strongly in rotation.

Relief from the monotony of sitting comes with the call to recitation. Here, perchance, the pupil stands, although, if the opportunity presents to lean against the wall or seat, he quickly utilizes it; otherwise he is sure to swing the body over upon one leg, into the third position of our series. In spite of his teacher's oft repeated command, " stand up," he drops again and again into this posture, until it becomes habitual, with its far reaching evil consequences.

The hands are troublesome members at times, and the disposal of them becomes a vexed question to teachers. The study of our fifth position in sitting, shows that no more serious mistake *can* be made in the schoolroom than to require children to fold the arms across the chest. Folding the arms behind the back, as a change from forward positions, is sometimes restful, but, if long continued, tends to deepen the normal curves of the back.

It is a common practice for children to carry a pile of books upon the arm, to and from school. This is harmful in its tendency, for several reasons: It confines one arm, preventing its easy swing in walking, an important element in equalizing the circulation of the blood. It unbalances the body, making necessary a shifting of the parts to restore equilibrium, thus placing the trunk in an unsymmetrical position. Most individuals, adults as well as children, acquire the habit of using one arm more than the other, in carrying books, bags, etc. That the habitual weighting of the same side tends to produce deformity, is shown in the figure of the man who has carried a pack on one shoulder continuously.

Nearly all occupations in life present temptations to the body to acquire a habit of posture which, in time, modifies the shape of the individual. The teacher herself, while using her best efforts to train her pupils to right habits of posture, is likely to become unsymmetrical. A careful physical examination made by me of over two hundred teachers (women), revealed the fact that a majority of them had the mark of their occupation stamped upon them, either in the twist of body, which results from standing on one and the same leg, with the other thrown to the side, or the high shoulders and projecting head, caused by sitting habitually in a chair with arms.[2]

The woman who sews by hand acquires a low right shoulder, with head dropped toward the opposite side; while the one who spends many hours each day working on the sewing machine becomes high shouldered and short-necked. The man who stands at his desk all day acquires the same shape, so does the sailor who climbs the mast. The man of letters does not sit over his desk many years without elongating the muscles which attach the head to the spine, thus acquiring the forward poise of the head so often seen in the pulpit and upon the lecture platform. Drug and dry goods clerks, if right-handed, work with the body resting on the right foot. The resultant shape we are all familiar with, if observant. The horse-car driver, the truckman, and even the hod-carrier, all receive in time their trademark.

Since the evil results of habits of posture are so far reaching and so subtle in their influence upon the human body, it becomes the duty, not alone of educators, but of business men who employ large numbers of people, and of architects who plan large public buildings, to make the surroundings of those for whom they are responsible as hygienic as possible.

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[2] Nearly all these women wore corsets habitually; hence, the statement that this garment prevents asymmetry is fallacious.

Chairs[3] and other seats should be provided which help the body to maintain itself in symmetrical postures. They should be so placed as to make it unnecessary to turn the head and shoulders in the act of giving attention. Sufficient space should be allowed for the extension of the lower extremities. Desks upon which the elbows can rest should not be placed before school children.[4]

Workshops should be so planned that operatives can change their work from side to side, or vary it, to prevent them from becoming unsymmetrical.

Furthermore, corrective exercises of three minutes' duration should be given, at stated intervals during the day, in all our schools and workshops, with the definite object in view of preventing loss of symmetry and deterioration of health.

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[3] Dr. William Schulthess (*Zeitschrift für Orthop. Chirurgie*, Bd. I. Hft. I) describes a seat which he has planned, with special reference to the prevention of spinal curvatures in children. His plan seems to me to embody the fundamental principles involved in the construction of a suitable schoolroom seat.

[4] It goes without saying, that the schoolroom desk cannot be dispensed with. It, however, should be so constructed as to be a help and not a hindrance to the symmetrical growth of the pupil. To be of assistance, it should consist of two parts; a writing table and a reading desk. The former should be low, having a flat top, and ample space beneath for the knees. Moreover, it should be only long enough to accommodate the copy book.

The reading desk (which might consist of a section of the table), should be adjustable, swinging upward and forward to place the type to be read at the right focal distance for each individual pair of eyes, thus preventing the necessity of dropping the head and shoulders forward in study.

Such a school desk would leave the arms free, maintain the body erect, and prevent eye-strain.

IV

EDUCATIONAL METHODS AT WEST POINT

The United States Military Academy at West Point is annually inspected by a board of visitors, consisting of two senators, three representatives in the United States Congress, and seven other members appointed by the President. During the first two weeks of June of each year, this board makes the most thorough investigation of the course and methods of instruction, the government, administration, and discipline of the institution, and, indeed, of every detail concerning the treatment, behavior, and conduct of the cadets. A full report of the results of this investigation is made to congress every year, and is, by it, published to the world, so that it may be said to be constantly open to public scrutiny. It is, of course, highly gratifying that these reports have been almost invariably very commendatory, and that the people have signified their assent to the continued existence of the institution and their appreciation of the results obtained, by a generous appropriation for its support from year to year.

At the request of the editors of the EDUCATIONAL REVIEW I shall endeavor to give a brief outline of the method of instruction which has now, for more than seventy years, so successfully accomplished its purpose. As a preliminary, however, it may be well to give a brief statement of the requirements for admission to the academy, and the conditions for graduation, in order that the nature of the problem which the academy has to solve may be understood.

1. *Requirements for admission.*—Every candidate is subjected to a rigid physical examination by a board of medical officers of the army, and if there is found to exist in him any cause of disqualification to such a degree as would immediately or at no very distant period impair his efficiency, he is rejected. Those who pass the physical examination are then

examined in reading, writing, orthography, arithmetic, English grammar, geography, and the history of the United States.

Prior to 1870, candidates were examined orally in these subjects, and it was then the custom to assign a sufficient number of cadets of the upper classes to give instruction to the candidates for a period of about three weeks before their examination. Since that time, however, the examination has been mainly written, and so conducted as to conceal the identity of every candidate from the members of the Academic Board, in order that its judgment should be reached only by the written results of the examination papers. Candidates that receive at least sixty-seven per cent. in each of the subjects mentioned above, are considered qualified to proceed with the course of instruction and are admitted. Of course it is afterward demonstrated that many have been admitted who were not able to master the course, and they, year by year, fall by the way. It may be stated, as a rough approximation, that of one hundred candidates examined, sixty-six will pass the entrance examination and thirty-three will finally graduate. When the simple character of the requirements for admission, and the advanced age (from seventeen to twenty-two) of the candidates are considered, it must be admitted that this fact is not very creditable to the attainments of those who seek to be educated for the military profession.

2. *Requirements for graduation.*—Every cadet who, on graduation, receives the diploma of the military academy, has been obliged to show his proficiency according to the standard adopted, in the course of study and text-books, given in the following pages.

For term work, the standard usually followed for proficiency is about sixty-seven per cent. of the maximum that can possibly be obtained by the best students, and while in some cases this may not be attained on the advance, the general review and examination must exhibit such an improvement as to bring the total up to about that standard.

It will be apparent at a glance that the extent and char-

COURSE OF STUDY AND BOOKS USED AT THE MILITARY ACADEMY.

(Books marked thus * are for reference.)

First Year.—Fourth Class.

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Mathematics.	Davies' Elements of Algebra. Davies' Legendre's Geometry. Ludlow's Elements of Trigonometry. Davies' Surveying. Church's Analytical Geometry.
Modern Languages.	Keetels' Analytical and Practical French Grammar. Keetels' Analytical French Reader. * Spiers' and Surenne's Dictionary. Whitney's Essentials of English Grammar. Hart's Manual of Rhetoric and Composition. Abbott and Seeley's English Lessons for English People. Abbott's How to Write Clearly. * Webster's Dictionary.
History, Geography, and Ethics.	Lectures in Ethics, and in Universal History.
Drill Regulations of Artillery and Infantry.	Practical Instruction in the Schools of the Soldier, Company, and Battalion. * Blunt's Firing Regulations for Small Arms. Practical Instruction in Artillery.
Use of the Sword, etc.	Instruction in Fencing and Bayonet Exercise, and Military Gymnastics.

Second Year.—Third Class.

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Mathematics.	Church's Analytical Geometry. Church's Descriptive Geometry, with its application to Spherical Projections. Bass' Introduction to the Differential Calculus. Church's Calculus. Church's Shades, Shadows, and Perspective. Johnson's Treatise on the Method of Least Squares.
Modern Languages.	Keetels' Analytical and Practical French Grammar. Borel's Grammaire Française. Bôcher's College Series of French Plays. Roemer's Cours de Lecture et de Traduction, Vols. I and II. * Spiers' and Surenne's Dictionary.
Drawing.	Topography and plotting of Surveys with lead pencil, pen and ink, and colors ; construction of the various Problems in Descriptive Geometry, Shades and Shadows, and Linear Perspective and Isometric Projections ; Practical Surveying in the field. * Reed's Topographical Drawing and Sketching, including Photography applied to Surveying.
Drill Regulations of Artillery, Infantry, and Cavalry.	Practical Instruction in the Schools of the Soldier, Company, and Battalion. Practical Instruction in Small Arms Target Practice. * Blunt's Firing Regulations for Small Arms. Practical Instruction in Artillery and Cavalry.

THIRD YEAR.—SECOND CLASS.

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Natural and Experimental Philosophy.	Michie's Mechanics (4th Edition). Michie and Harlow's Practical Astronomy. Young's General Astronomy. Michie's Elements of Wave Motion relating to sound and light.
Chemistry, Mineralogy, and Geology.	Bloxam's Chemistry (7th Edition). Tillman's Elementary Lessons in Heat (Revised Edition). Tillman's Essential Principles of Chemistry. Tracy's Anatomy, Physiology, and Hygiene. Thompson's Elementary Lessons in Electricity and Magnetism. Dana's Manual of Mineralogy and Petrography (5th Edition). Le Conte's Elements of Geology.
Drawing.	Free Hand Drawing and Landscape in black and white. Constructive and Architectural Drawing in ink and colors. * Reed's Topographical Drawing and Sketching, including Photography applied to Surveying.
Drill Regulations of Artillery, Infantry, and Cavalry.	United States Army Artillery Drill Regulations. Tidball's Manual of Heavy Artillery Service, U. S. Army. United States Army Cavalry Drill Regulations. United States Army Infantry Drill Regulations. Practical Instruction in the Schools of the Soldier, Company, and Battalion. Practical Instruction in Artillery and Cavalry.
Practical Military Engineering.	Practical Instruction in the construction of Pontoon Bridges; in laying Gun Platforms; and in the preparation and application of Siege Materials. Practical and Theoretical Instruction in Military Signaling.

FOURTH YEAR.—FIRST CLASS.

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Civil and Military Engineering and Science of War.	Wheeler's Civil Engineering. Wheeler's Field Fortifications. Mercur's Mahan's Permanent Fortification, Edition of 1887. Wheeler's Military Engineering (Siege Operations, and Military Mining). Mercur's Elements of the Art of War. Mahan's Stereotomy. * Royal Engineer's Aide-Mémoire, Parts I and II. Mercur's Military Mining.
Modern Languages.	Knapp's Spanish Grammar, Knapp's Spanish Readings. * Seoane's Neuman and Baretti's Dictionary.
Law.	Davis's International Law. Cooley's General Principles of Constitutional Law in the United States. Winthrop's Abridgment of Military Law. General Orders No. 100, A. G. O., 1863.
History, Geography, and Ethics.	Swinton's Outlines of the World's History. * Labberton's New Historical Atlas and General History.

FOURTH YEAR.—FIRST CLASS.—*Continued.*

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Practical Military Engineering.	Practical Instruction in the construction of Pontoon, Trestle, and Spar Bridges; in the preparation and application of Siege Material; and in laying out field and siege works. Practical Instruction in Military Mining. Practical Instruction in Military Reconnaissances; in Field Telegraphy, Night Signaling, and the use of the Heliograph. *Ernst's Manual of Practical Military Engineering.
Natural and Experimental Philosophy.	Practical Instruction in Astronomy.
Drill Regulations of Artillery, Infantry, and Cavalry.	Practical Instruction in the Schools of the Soldier, Company, and Battalion. Practical Instruction in Artillery and Cavalry.
Ordnance and Gunnery.	Metcalfe's Ordnance and Gunnery. Ingall's System of Exterior Ballistics.

acter of the work required for graduation, when compared with the very limited requirements for admission, are excessive, and this work can only be accomplished in a satisfactory manner by the average student through the strict discipline of a recognized authority. In addition to its purely academic work, the military profession demands that the academy should develop the manly virtues of its pupils and eradicate or suppress their vices; so that he that is deemed worthy to receive the diploma, is recommended to the President of the United States as fit to bear a commission in the army, not only because of his intellectual attainments, but because he has given the best of evidence to the Academic Board that he promises to become, through all trial and temptation, a man of strict integrity, of self-reliance, a faithful, loyal, and subordinate servant of his country.

Bearing these requisites in mind, it is readily seen that unquestioned obedience is the first thing to be instilled in the young cadet's mind, and this not only on the drill ground, but in the barracks, the recitation room, and even in the many relations that exist among comrades wherein, while at one moment they may be boon companions, at the next, one becomes the military superior of the other. Briefly, the system is compounded of subordination and command, extending all through the four years of cadet life, wherein the principle of responsibility, first in lesser things and so continually progressive to greater, is employed to inculcate the sense of personal duty.

For instruction in studies, the new class is at first divided according to alphabetical order into sections of twelve men each, or less, and the first two months are principally devoted to breaking them into the West Point method of recitation, of teaching them the necessity of exactness of thought and expression, and of rearranging them according to ability or apparent proficiency. During the first half year, but two studies are assigned to the new class, for which two and a half hours are required in the section room for recitation; and five hours are necessary for their preparation. At the designated hour for recitation, each section, under the command of its section marcher, is formed in the area of barracks, the roll is called, the present and absent reported to the cadet officer of the day, and then it is marched to its recitation room, where, after reporting to the army officer instructor, the responsibility of the cadet section marcher temporarily ceases. I well recall the imposing appearance of the instructor to whom I made my first recitation in algebra in 1859. I had studied this subject several years before coming to the academy, and thought that I was very familiar with the lesson of the day, but I soon found that my explanation of the particular part assigned to me was not equal to the exacting demands of this formidable son of Mars. I was required to stand in the stiff attitude of a soldier, use my pointer only when necessary to point out some symbol on the blackboard, and immediately return it to the prescribed position at my right side. As a consequence my recitation was not as satisfactory to myself as my knowledge of the subject warranted, and I was somewhat irritated and rebellious. But day by day these exactions on the part of the instructor became less formidable; we corrected our habits, modified greatly our imperfections, and soon were able to make a clear and intelligent demonstration. As an example of military exaction, it is related that on one occasion a young cadet who had carefully studied out his subject at the blackboard, and felt that he was going to make a brilliant recitation, was called on, in his turn, to recite. He began, "I am requested to demonstrate the binomial theorem." "No, sir," thundered the instructor. "You are *required* to do so, sir. Go on."

At any time during the recitation the instructor may ask any question, or cross-examine the student upon any part of the subject matter, but it is generally the terrible "Why?" Woe betide the unfortunate who has learned by heart the words of the text and has failed to examine into the reasons of each point of the demonstration. There was once at the academy the son of a distinguished officer of the army, who was always quite willing to accept whatever the book said without question. On one occasion, after completing his demonstration, the instructor propounded the inevitable question, "Why is that so, Mr. Blank?" "The book says so, sir," he replied in the rich brogue of his native tongue. "That is not a reason," responded the instructor. "Well, sir," said Mr. Blank, "this is the first place I'VE ever been where a man is required to doubt the ăather."

This well illustrates the character of the instruction given during the whole academic term. It is essential that the only authority in mathematical studies shall be the rational deductions derived from the fundamental axioms and definitions which are established in the earlier lessons of the course. No formula, nor assumption, nor demonstration is ever given by authority of the author.

During the progress of the course, frequent transfers from one section to another are made by the Superintendent of the Academy on the recommendation of the head of the department of instruction. Before the semi-annual examination, a list of the class in each subject is prepared, showing the relative standing according to the judgment of the professor, together with a record of marks actually made on advance, review, and general review. At the semi-annual examination, the Academic Board is divided into two committees, to each of which is assigned half the subjects that are taught in the previous session. The members of each committee are required to pay close attention to every cadet's examination, to mark carefully the degree of his proficiency, and afterward, when in private session, to compare, discuss, and determine his relative standing in that subject, giving due weight to the record submitted by the professor. This supervision of the work and methods of each professor by his colleagues is considered to be of the greatest value to the Academy, and while it does not limit the responsibility of the professors in the conduct of their special duties, it does often modify individual judgment, and gives greater weight to the final result.

The course of studies and the character of the text-books used at the Military Academy require that all the time allotted by the regulations for study should be faithfully employed for that purpose. If a cadet be not in good physical condition, he must lose class standing and possibly his warrant; for there is no stopping by the way. Every day has its assigned task. Like an army on the march, making fifteen miles a day, the stragglers at the rear of the column, losing a day, must either make their thirty miles the next day or be captured by the enemy. Many cadets fail, either because they are constitutional stragglers, or become so at critical periods of their career. Some are not necessarily less able intellectually than others who succeed, but the latter win success by dogged perseverance and sturdy pluck.

Owing to this steady pace, the apportionment of time and lessons must be arranged with great care, so that the cadet may not be overtasked. Taking for example the work of a member of the second class, just entering on the third years' course, we find the following allotment of time: *Reveille* and room inspection, 5.30 to 6 A. M; breakfast, 6.30 to 7; study to 8; either recitation or study from 8.30 to 9.30 or from 9.30 to 11 A. M.; recitation or study from 11 to 2 or from 12 to 1 P. M.; dinner, 1 to 1.30; recreation, 1.30 to 2; drawing from 2 to 4 three times a week alternating with study; drill from 4.15 to 5.15; parade and supper from sunset to 7; recreation till 7.30;

study till 9.30; taps 10 P. M.; sleep till *reveille.* In case the cadet be assigned for guard, he loses about an hour and a half from his study time, but this he must anticipate about once in six days.

Doubtless those that are engaged in instructing young men, and especially those who are in love with their work, often think of the methods in vogue, and seek to learn whether modifications might not with propriety and advantage be made. There are so many conflicting elements to be considered, especially in this comparatively new country, where we are all in a hurry to push our sons into business or into some profession, and necessarily sacrifice the most important years of preparation to the exacting demands of immediate but temporary success. Each successive preparatory stage is shortened that the next may be the sooner reached. Our self-love is aroused whenever our sons are apparently less advanced than are our neighbor's, and we eagerly seize upon any project that promises to transpose the conditions. Much has been written on this subject of late, and though there are many questions as yet unsettled, it can scarcely be doubted that our educational institutions have made striking advances in the scope and methods of their training. No one can to-day visit the great centers of learning without being impressed with the tremendous earnestness which actuates so many of our young men, especially in the many new branches of scientific education that have, of recent years, been introduced in the colleges and universities.

On the occasion of a recent visit to some of the more prominent, I was particularly struck with the active interest of great numbers of these young fellows and exceedingly impressed with the character of the work they were doing. But there arose in my mind the query whether in some cases, if not in all, the very grave objection I have alluded to did not exist. I mean that while striving after excellence in practical manipulation during the period of instruction, something more valuable in the way of thorough theoretical preparation had not been sacrificed. Of this I could not be sure, because I had not then the time nor opportunity to make such an examination as would enable me to form a just and proper judgment. It forced itself upon my mind, however, because I knew that it required a great many hours of severe study under the strictest conditions for the employment of time, to prepare our young men at West Point in the fundamental principles upon which all scientific education must be based.

To bring more particularly into view the steps by which a course of instruction at the Academy is devised, I will describe briefly the course of natural philosophy, with which I am somewhat familiar, and which will serve as a type of others. It is taught during the third year of the course, where the allotment of time is that already given in detail. The subjects taught in this department are the analytical mechanics of solids and fluids, wave motion and its application to sound and light, and general and practical astronomy. At the same time the cadets have a course under the department of chemistry in chemical physics, heat, electrics, physiology, mineralogy, and geology; a course in drawing, and a course in minor tactics and drill regulations.

Every consideration of the professional career of an officer shows that he is not intended to be a specialist in any of the above sciences, and indeed should he become one it would limit his usefulness in the military profession. But he may often be required to form an independent judgment on questions connected with them all. He should therefore be well grounded in the fundamental principles which underlie all science in order that he may have an unfailing standard of judgment.

Having this in view, we utilize the student's mathematical knowledge gained in the preceding years to establish the laws of mechanics by the concise methods of analysis. Now the true basis of mechanics is found in the modern doctrine of the "conservation of matter and energy," and this rests primarily on the axiom that the whole is equal to the sum of all its parts. Since both matter and energy are quantities capable of being measured in definite units, the doctrine of their conservation amounts to nothing more than is axiomatically expressed by the statement, "That whatever energy resides in a body at any instant is exactly equal to that in the body at any previous instant plus that which has been added and minus that which has been taken away in the interval." This statement put into mathematical language forms the single fundamental equation from which, of necessity, all laws of mechanics must be deduced. The law is simple, but the extent of our theoretical investigations is exceedingly limited, since our mathematical attainments, upon which it depends, are so also.

We have now an established law from which there can be no appeal. Every deduction flowing from it must be equally conclusive, provided the processes be correct. With confidence in the premises, skill in the mathematical applications, and integrity in the work performed, the student needs only the wisdom of experience to guide him by the most direct road to the next stopping place—for the duration of the educational journey is indeed limited. In making the application of the law to a free rigid solid, we deduce all the circumstances of its motion of translation and of rotation, and show that these are entirely independent of each other and can be separately investigated; and a similar treatment of a body under constraint naturally follows. We then pass to the mutual attraction of two bodies, from which the laws of central forces and planetary motions are deduced, thus leading up to physical astronomy. So in hydrodynamics the same general law finds its application in the flow of liquids and gases, and in the vibratory motions of molecules, from the latter of which follows the mathematical theory of sound and light. And thus the course is formulated, connected, and arranged.

In the simply furnished, almost bare, barrack room, the cadet learns his lesson during the time set apart by the regulations for study. When he appears for recitation, it is understood that he is prepared on the whole of the assigned lesson of the day, but before the recitation properly begins he may seek from his instructor such assistance in the way of explanation as he may need. Then follows a searching inquisition by the instructor into his proficiency. The mental discipline derived in the six or more hours of daily study and the section room work is the reward which the cadet carries away with him in return for his four years of continuous labor.

The record of marks on a scale of three as a maximum, is posted every week, and accessible for the inspection of the cadets, so that everyone can compare his standing and progress in every subject with those of his comrades. This stimulates his activity, either in striving to advance a section or to prevent his transfer down. As the sections are arranged in order of merit, it is the duty of the head of each department of instruction to make frequent visits to the different sections of his class, and by personal investigation, ascertain whether the order of merit, as shown by the record of marks of the instructor, is correct or should be modified, and to determine when transfers should be made between sections. These transfers, largely based on the record of marks, are decided upon impartially, and after due consideration and consultation with the instructors in charge of the sections interested. Another function of both officer and professor, of great value in the educational process, is to develop self-reliance in those that are naturally shy, by judicious encouragement, and by the proper exercise of that abundant authority vested in them, to hold in check those that are over-confident and unduly self-asserting. In the close personal and intimate relations that necessarily exist between the officer instructor and the cadet, every characteristic of the latter is brought into prominence at some time or other. The generous traits, the selfish qualities, the grasping ambition, or the modest diffidence can be censured or encouraged in turn, and by these means the cadet may be educated on lines much more valuable for the honor and character of the military profession than by the purely intellectual attainments acquired in the particular study under consideration. For this reason alone it would be a grave mistake to discard the recitation system at the Military Academy.

Taking, then, a general view of the system as a whole, it may be said that, by a wise administration of discipline, there is inculcated a subordination that is devoid of servility; by a distribution of responsibility, simple but honorable official duties are provided which, when rightly performed, enhance each one's self-respect, and improve his capacity for command; and by directing that there shall be constant employment of time, from *reveille* till taps, idleness with all its attendant evils may be largely eliminated. Military exercises pertaining to the several arms of the service are judiciously interspersed during the academic session, to relieve the mind from intellectual fatigue and at the same time to provide for the practical instruction in the duties of the soldier. Finally, it will be seen that while the course of studies is mainly academic, that it is of a high grade, being largely devoted to a very thorough preparation in those principles which underlie a broad and general scientific education, and at the same time judiciously assimilated with those studies that are essential for the preliminary education of an accomplished officer in the military profession.

The United States Military Academy was established by enactment March 16, 1802, and began its existence with ten cadets on the Fourth of July, the same year. Since the close of the graduating exercises of this year, there are borne on its rolls the names of its thirty-five hundred and eleven graduates. No other institution of learning has what the Academy possesses, a full and complete biographical record of every one of its graduates. Prepared with the utmost fidelity to truth, and published to the world by the late General George W. Cullum, it is indeed a grand monument to the institution; a justification of the wisdom of its establishment, the efficiency of its organization, and the soundness of its methods of instruction. The process by which the Academy grew from an obscure foundling to become an institution worthy the pride and affection of a great people, is admirably told by General Cullum in an appendix to the third volume of his *Biographical Register*. The following brief quotations will show that the present system is the creation of a graduate of the Academy, General Sylvanus Thayer, a man singularly endowed for the work he had to do:

"It was truly fortunate for the Military Academy that its first superintendent was such a man as Major Jonathan Williams, with the experience of fifty-two years of an eventful life; with the patriot instincts of his Revolutionary sire, and grand-uncle, Benjamin Franklin; with a mind liberally educated, and stored with much scientific and general information; with the pen of a ready writer which had done good service in the struggle for our independence; with a judgment matured by a mercantile intercourse, and a broad and high social position at home; with great decision of character, and untiring zeal in the public service; and, withal, a most kind and polished gentleman, and a brave and chivalric soldier. To such pledges for success in his important command, he added industry, exactness, patience, and benevolence; hence, under his eminent example, the academy quickly received tone and character, steadily advanced in discipline and usefulness, and brought forth golden fruit in its distinguished graduates, who did brilliant service in our War of 1812–15 with Great Britain, which began in gloom and disaster, and closed in a blaze of victory. . .

"Unfortunately for the Military Academy, Dr. William Eustis, who had been a hospital surgeon in the Continental Army, was appointed, March 7, 1809, a member of President Madison's Cabinet. He began his administration of the War Department by an effort to disperse the few cadets at the institution, degrade them to common laborers, and deprive them of all educational advantages. By midsummer of 1810, he, by his failure to make new appointments, and by his constant detail of cadets for clerks and for subordinate company duties, had left so few at West Point that the Military Academy, except in name, had virtually ceased to exist, and discipline was so palsied by his constant intermeddling that only by the most summary measures could Williams preserve even its semblance. . .

"Major Thayer, upon graduating at West Point, had left his Alma Mater under the wise and efficient supervision of Colonel Williams, and upon his return, after the lapse of only nine years, he found the Military Academy in a chaotic condition, without system or regularity in its administration, or harmony among its professors, most of whom were absent or in arrest. The number of cadets belonging to the institution was much below the legal allowance, and these had been admitted at all ages from twelve to thirty-four; some were maimed and others married, and many were totally disqualified for the profession of arms. Preliminary mental and physical examinations had been dispensed with; no classification by merit existed; and graduation from the institution depended more upon vacancies in the army, age, and growth of cadets, and fancied fitness to become officers, than upon any rigid test of attainments. Some, despite the law of 1812, requiring that they should go 'through all the classes,' became full-fledged officers in four months, and others again not till they had been pupils for nearly six years.

"Major Thayer resumed the superintendency September 5, 1817, when the academy began that successful ascent which, in the succeeding sixteen years, culminated in such notable perfection of the institution.

"Almost by intuition, he discovered the virulent ulcers destroying the vital parts of the academy, and such as he could not cauterize into healing action, like a bold surgeon, he promptly extirpated. Examinations were at once held, the incompetent and vicious dismissed, and the indolent, who had lingered for many years without progress, quickly discovered that a like fate awaited a continuance of their derelictions. He promptly organized the cadets into a battalion of two companies, officered by members of their own body, with a colonel at its head and an adjutant and sergeant-major for his staff; appointed an officer of the army as 'Commandant of Cadets,' responsible for their tactical instruction and soldierly discipline; transacted business with members of his command only at stated office hours; classified all cadets according to their proficiency in studies; divided classes into small sections for more thorough instruction by the teachers in charge; required weekly class reports showing the daily progress of students according to a scale of marks; directed more thorough recitations, and a freer use of the blackboard; greatly improved the curriculum of studies, according to a well digested programme; organized a proper Academic Board, with the superintendent at its head; introduced the check book system, to curtail the prevailing extravagance of cadets, then deeply in debt; reduced the expenses of educating pupils to less than one-half the cost at the Woolwich Military Academy in England; had the officer of the day daily to dine with him, enabling himself thereby to learn all that was transpiring in camp or barracks; required cadets to obtain a permit from him for almost everything, even to a letter from the post office, thus maintaining such constant intercourse as enabled him to call all by name, and understand their characters and habits; and made many other salutary provisions to secure thorough discipline, a high standard of honor, complete physical and mental development, and a generous rivalry for conspicuous soldiership and eminent class rank."

It may well indeed be said of General Thayer from the foregoing record that he was truly "the Father of the Military Academy."

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V

THE UNIVERSITY SPIRIT

If I were called upon to express my conception of a university, I should say that in the largest sense it is a place for the emancipation of thought. The thought of man fettered by ignorance or superstition, superstition which may coexist with a high degree of intelligence, is the great mission field of all educational institutions. It has often occurred to me that the mission of a university is more a crusade against superstition than against ignorance. Its work is to cultivate not so much the power of thinking as of logical thinking. It is very hard for us to realize how much the wings of our thought are tied down by hereditary or thoughtless beliefs. The world contains untold attics full of heirloom rubbish, and it needs an incendiary fire now and then to get rid of it. Second-hand opinions are by far the most common kind, and the whole effect of a university should be to make men think for themselves. The spirit of a university is therefore necessarily iconoclastic. There is an iconoclastic spirit which attacks existing beliefs simply because they are existing beliefs; and this is far enough removed from the spirit I would commend. The true iconoclastic spirit, which it is the mission of a university to foster, is not one that attacks, but undermines all existing beliefs inconsistent with truth. Its destructiveness is incidental, of necessity, not premeditated. Habits of investigation and resistless deduction are the things to be cultivated and insisted upon; and when these tempered weapons are turned upon any subject approachable by the intellect of man, they pierce straight through the mail of preconceived notions and reach the heart, the truth. From my point of view this was the secret of the tremendous power of the greatest teacher of the principles of right living who ever lived. His clear statements of ethical principles pierce like sunbeams through the dust that men had raised about themselves. And so, I have said, the university is a place for the emancipation of thought, a place to encourage the spirit of true iconoclasm.

The truest idea that has found its way into modern university methods is the recognition of the individual. Sowing the same seed in all fields, of whatever diversity of soil or climate, surely commends itself no longer as a rational system of education. The old method of education fitted pupils like contract clothing fits an army—it was full of misfits. The problem is not one of an undifferentiated mass, but of highly differentiated individuals, and if training does not recognize this individualism, its adaptation is only a thing of chance. One kind of sound vibration may call forth a sonorous response from properly attuned strings; but the other strings remain silent and unresponsive. The duty of a university is to strike every note, that every string may respond; and this response is the evidence of awakened thought. I regret to say that there are still advocates of the patent medicine system who claim that the same dose is suited to every ailment; and their sole argument is to point to the illustrious cases that have been benefited. Where, it is said, can you discover grander results of training than in the intellectual giants of the last generation? Have we any such in these degenerate days? It must be remembered, however, that men only appear gigantic when their associates are small; and I look upon these ancient giants, not so much as an evidence of fine educational methods, as an evidence of terribly inappropriate methods which left them so many small men as associates. The seed that falls on good ground might argue well concerning the beneficent provisions of nature; but what of the myriads of seeds that fall by the wayside, or among thorns? The testimony of the one must be corrected by that of the other before any correct conclusion can be reached. To make every pupil think for himself is the sole mission of a university. In his St. Andrews address on Education, Froude aptly puts it "that the backbone of education must always be the ability to do something, and not merely to answer questions."

From my point of view, when universities abandoned the old patchwork curriculum, and substituted for it elective courses of study, they changed from a false to a true theory of education. By means of it, even the intellectually poor student of to-day is doing more, is developing more utilizable brain power than the brilliant one of a few years ago; and we have no longer a race of giants and pygmies. Besides, it is not stating the whole result to say that even intellectually poor students can do much, but also students intellectually rich in certain directions have now a chance to cultivate their peculiar powers. The old system not only held down all the dullards, but also repressed many of the gifted. It simply roused to great intellectual activity those whose cast of mind was adapted to the only kind of training given.

This change to elective courses, which is sweeping rapidly through our American colleges, is one of those cases in which there was a revulsion in public sentiment long before it obtained a hearing among the colleges, encased as they were, and are, in mediæval precedent. It is curious that in this day and generation, when everything is making such marvelous progress and completely upsetting our old notions, that there should be still some to claim that the educational methods of one hundred years ago are still appropriate. To be consistent, such individuals should only ride in stage coaches and read by tallow dips. If the university of the twentieth century has not outgrown many of our methods of to-day, I should consider it a sorry record. The general public long since recognized that there was something out of touch between the old-fashioned college methods and the needs of the world. Of course, the public could not formulate the difficulty or suggest any better methods. Only by sneer or flippant joke could it express its dissatisfaction. What the public said about college methods was little to the point, and it would have been foolish to have followed such suggestions. But the feeling indicated by this tongue-tied expression did mean that they were not getting from the colleges what they needed. It was a blind hunger that did not know how to satisfy itself, and could only grumble. Those who have recognized this demand for men and women with more utilizable brain power have suggested elective, individual work, and that is the answer we are giving to this demand.

I have spoken of the great desirability of cultivating a utilizable brain; and it is a question of some moment to consider the uses to which it may be put. I recognize in all American training a tendency to hold up, as the purpose of intellectual equipment, the ability to compete for high position. "Every American boy recognizes the fact that he may become President," has become a sort of national incentive, simply expressing the fact of competition in its most narrowed and excessive form. The beauty of knowledge for its own sake is too much lost sight of in our eternally utilitarian outlook. It has occurred to me that we are missing the mark here somewhat, and I have wished that educators would not so often present competition for place as the object of education. I know it is a dominant spirit, bred in our natures and of our necessities, and that it is often used to stimulate the otherwise listless. It may be to a certain extent necessary, but it always diverts attention from the real end in view, and makes us rivals instead of kindred searchers after truth. I firmly believe as the desirability of education for its own sake becomes better understood, that this spirit of competition will disappear, and that a university-trained man will come to believe that his education has been everything to him, even if it has not brought him high position. Spinoza says: "I am certain that the good of human life cannot lie in the possession of things, which, for one man to possess, is for the rest to lose, but rather in things which all can possess alike, and where one man's wealth promotes his neighbors'." This is sound philosophy, which can well find its application in things intellectual. I recognize the fact that I am uttering thoughts eminently opposed to our practical American spirit, which must see a financial reward even in university training. I am not in the least decrying the financial benefits of such training, for they will come and are never commensurate with the preparation; but I would have them considered as the *incidents*, not the *incentives*. The incentive should always be present whether the incident occurs or not.

It has been often claimed that university men are hedged in by their routine of work, with no wide horizon that will include within its reach the world beyond the classroom; that this narrowness of vision, this constant association with inferiors in mental attainment, cultivates a pedantic, dogmatic spirit. I am compelled to say that this is still too true, but becoming less so every year. The ideal university is not only a power for stimulating intellectual activity among its immediate students, but also among that larger range of non-resident students who can be made tributary to it, for its instruction must reach farther than the sound of its professors' voices. It must not be a deep well, with its pure waters curbed about and held in shadow, to be drawn from, bucketful at a time, only by those eager enough to come to it and draw; but it must be a strong, perennial spring, not only satisfying those about its brink (doubtless always the best place to drink), but also sending its overflowing waters into the world beyond. In short, university men must be productive, and by voice or pen speak to the world beyond their classrooms. They are expected to work; any conscientious work should bring results, and these results should be made known. But I refer here, not solely to this technical "output," but also to that popular presentation which, I am free to say, is just as beneficial to the professor as to the public. The public needs training by professors, and the professors need training by the public. Anyone who stands before an intelligent American audience and imagines that he is the sole benefactor of the occasion, needs to address more audiences. And why must the public depend for its information upon patent medicine venders rather than upon the regular profession? I think that our professional teachers are too much to blame for this. The public will gladly hear them, and I think the public deserves to get much of its information from reliable sources. My point then is this, That a university should not only educate its students, but, so far as practicable, the world beyond.

In conclusion, I must say that no university has any right to exist that does not seek to strongly impress upon its students the exceeding beauty and strength of right living. The training which reaches only the intellectual part of man has fallen far short. That nobility of character which is far removed from moral weakness is more to be sought after than freedom from intellectual weakness, and I think all will concede that the cultivation of character is a prominent duty of a university. I feel strongly upon this point, and would not think of tolerating for a moment any influence in either professor or pupil that would lower the high standard of morals that must be maintained. Therefore, while all the varying beliefs and disbeliefs must meet on perfect equality, as is befitting an intellectual community seeking for truth in every direction, we must all unite in one belief, that the only kind of life worth living is that one which is governed by the highest moral principles. As for myself, I find the best statement of these principles in the utterances of the great Nazarene.

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VI

SOME NEW TEXT-BOOKS OF ETHICS[1]

The teaching of ethics has awakened a widespread interest within recent years, and to this interest we may probably attribute the recent appearance of a number of text-books to supply the want created by it. That want is no doubt due to a combination of causes. Chief among them, probably, has been the reconstructive spirit in the reaction against the real or supposed leveling tendency of evolution. At first, this reconstructive effort took the form of rather bulky volumes, such as those by Martineau, Green, and Sidgwick, which were beyond the comprehension of all except those already well grounded in the subject. Latterly, however, the movement has found expression in more elementary text-books for beginners, in response to the demand for a certain kind of influence upon the youth of the country. The whole movement may be compared to the Socratic and Platonic reaction against the skeptical and demoralizing tendencies of Sophistic doctrine. This reaction was an effort to revive the moral consciousness of Greece, and the modern movement is an attempt to counteract the reaction against Puritanism which was produced by the doctrine of evolution; not by restoring Puritan ideas, nor by refuting the theory of development, but by giving sufficient prominence to ethics in the curriculum of public schools and colleges to exercise uplifting an influence, if possible, upon the character of youth.

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[1] *Conduct as a Fine Art.*—The Laws of Daily Life, by NICHOLAS PAINE GILMAN: and Character Building, by EDWARD PAYSON JACKSON, Boston: Houghton, Mifflin & Co., 1892, pp. 379.

Practical Ethics.—By WILLIAM DE WITT HYDE, D. D., President of Bowdoin College. New York: Henry Holt & Co., 1892, pp. 203.

An Introduction to Ethics.—By J. CLARK MURRAY, LL. D., F. R. S. C., Professor of Philosophy, McGill College, Montreal. Boston: De Wolfe, Fiske & Co., 1892, pp. 407.

The Elements of Ethics. An Introduction to Moral Philosophy.—By J. H. MUIRHEAD, M. A., Lecturer in Mental and Moral Science, Royal Holloway College, Egham. New York, Charles Scribner's Sons, 1892, pp. 239.

The Principles of Ethics.—By BORDEN P. BOWNE, Professor of Philosophy in in Boston University. New York: Harper & Brothers, 1892, pp. 309.

But this conception of its purpose is an entire misunderstanding of both the nature and the object of scientific ethics. Text-books are not written for purposes of exhortation, or to do the work of the sermon and the Sunday school. They are designed to give plain, unadorned instruction in regard to facts and general principles, not to impart moral character to the student. The mere fact of studying a subject and thinking about it, may issue in an influence upon character; not, however, by virtue of the mere intellectual knowledge obtained, but only by virtue of a predisposition of will in that direction already existing. The study of scientific ethics has no tendency to produce moral character which does not already exist. It has only two objects, both of which are very remote from the influences moving the will. They are, first, the analysis and explanation of moral phenomena, and, second, the solution of "perplexities of conscience." The former satisfies the scientific desire for system, and the latter the desire for confidence in the primary judgments of conscience. Both are satisfactions of a logical instinct, and the latter would have no place at all were it not that the moral nature is fully enough developed of itself, and requires only a corresponding development of intelligence to insure a correct choice in the path of duty. This is only to say that scientific ethics exists to enlighten the intellect, not to mold or move the will, and that any system which supposes it capable of doing the latter, is laboring under the delusion of Socrates, that "knowledge is virtue," and that men will always do the right if they only know what is right. Now this enthusiasm, bordering on a craze, for ethical instruction as necessary for saving the character of American youth, simply ignores the proper functions of the subject, and also the important fact that moral character is more easily produced by personal example and precept in any subject whatever than by any amount of teaching in scientific ethics. Personal relations and considerations are much more powerful influences on the will than any scientific and logical investigations. Hence, if moral earnestness can be awakened in any study, say literature, it will reflect its light and heat in other departments of the subject's life. Scientific ethics may then come in to crown the maturer period of study, not as a producer of good will, but as an enlightener of moral earnestness already existing. Before this period the only effective agency in molding the character will be the enforcement of certain habits and the occupation of the mind in serious and thorough study of it matters not what subject; or, as one writer has put it, "to fill every smallest detail of the daily school work with a demand for self-control and allegiance to duty, with constant reference to truth, and with appeals to conscience."

But how are the books under notice fitted to meet this requirement? The answer to this query, however, makes a distinction necessary. This distinction is between ethics taught in high schools and ethics taught in colleges. The former must necessarily be more elementary, and the latter more advanced. In regard to high schools I am decidedly of the opinion that theoretic and scientific ethics should not be taught at all. They are not qualified, according to previous observations, to accomplish the object desirable there, and for a thoroughly scientific study of the subject the students are not prepared. The volumes before me have various merits and demerits in this respect. *Conduct as a Fine Art* is neither a theoretical view of ethical problems nor is it adapted to text-book work in practical ethics. This defect, however, must not be construed as a reproach to the authors, because the two essays in the book were written in competition for a prize "for the best essay, treatise, or manual adapted to aid and assist teachers in our free public schools," and "to thoroughly instruct children and youth in the purest principles of morality without inculcating religious doctrine." It is unquestionably suggestive and helpful to teachers, but can have no pedagogical value beyond that purpose. The second essay is in the form of a dialogue, and while it represents an acute and unique analysis of young students' minds and thoughts, is much less fitted for use by students than the first essay, and this both as a scientific treatment of ethical questions and as a body of rules for directing conduct in practical emergencies. Nevertheless, the suggestiveness of the essays to teachers remains as an important merit.

The two writers are very successful in their main object, namely, in showing that morality can be taught "without inculcating religious doctrine." The fact that such a discussion should be deemed necessary at the present day, after Protestantism has so long taught the separation of Church and State, is not only a little remarkable, but it significantly indicates what most people believe the teaching of ethics is for, namely, to produce good people. It is astonishing, on the other hand, to find writers like the present, who oppose the religious view, assuming that this is possible, and then proposing a scheme which can be no more effective in this direction than that of their opponents. They should rather have shown that scientific ethics, and this includes the theological theories of morality, has no place whatever in our free public schools. This does not exclude the teaching of morality. But ethics and morality are entirely different things, and the latter so far from being a subject for instruction by itself should be a part of the instruction in every branch of study. It is possible also to produce and to teach a system of rules which, without appealing to any abstract sanctions, can show young persons the necessary means to results that they have already set before themselves as ideals. But a practical book of this kind has yet to be written.

Perhaps my last statement is contradicted by President Hyde's little volume. It is certainly very nearly the kind of book wanted for moral teaching in the public schools, though it may be a serious question whether it would be as serviceable when used as a text as it may be when suggesting to the teacher his method and the matter to be inculcated. But whatever merits it may have for the public schools, they are certainly wanting when considered for the higher needs of colleges both in theoretical and practical ethics.

Professor Murray's volume is not suited to public school work of any kind. This is not a demerit, because it cannot be said to have been intended for such a purpose. But the fact indicates very clearly the intellectual interest to which it appeals, and that is the scientific interest. It does not discuss current practical problems at all, and what it treats as "practical ethics" is only a classification of duties with a brief statement of their grounds. The work professes only to be an elementary one, and in this respect supplies a much felt want. The chief fault, however, at the outset of the book is the very inadequate definition and discussion of the elementary concepts of ethics. Without any attempt at this, the author at once plunges into a statement about man's psychical and physical nature. The student is not informed in any clear way as to what this means. The relation of heredity to moral problems is not understood by beginners in the study of ethics, and yet Professor Murray assumes all this. If it had been first explained that heredity and such influences were limitations on the possession of responsibility, and if this had been defined and analyzed, it would have been easy to detect the relevancy of the discussion. But as it is, the student has no preparation for the discussion of "moral consciousness as cognition" or for the classification of ethical theories which very soon follows.

Of the remaining portion of the book a better judgment can be expressed. The analysis of conscience is very good, and the treatment of utilitarianism, although brief, is admirable. The problem of freedom, I think, is not rightly conceived, because it is not distinguished from responsibility. The most serious fault, however, in my opinion, is the classification of ethical theories as "Epicurean" and "Stoic." The definition upon which the classification is based is correct enough, but the current and historical use of "Epicurean" and "Stoic," with their associations, makes them too narrow and too inexpressive of the real principles marking the difference between modern ethical schools. Martineau's classification is much better. The classification of duties, however, as "determinate" and "indeterminate," coinciding with the distinction between justice and benevolence, strikes me as particularly happy.

Mr. Muirhead's *Elements of Ethics* has still less fitness for public school instruction than Professor Murray's. But it is only just to say that it, too, was not intended to serve that purpose. It was written as a course of lectures for university extension work, and afterward modified for publication. It is less elementary and more philosophic than any of the three volumes already noticed, and seems even a little heavy for the ordinary public which listened to the lectures and for whose reading it has been published. Nevertheless, it makes, in some respects, an admirable text-book for beginners, although it requires to be supplemented by lectures and explanation. The author is evidently a disciple of T. H. Green. But he has not encumbered his thought and style with that philosopher's weaknesses, and hence has succeeded very well in reaching the understanding of students. There may be some question of the pedagogical value of this book, however, since the general analysis is not so systematic or logical as is desirable. For pedagogical purposes there should be a careful classification of ethical theories, and a more analytical account of their evolution. Then a most decided weakness, considered pedagogically, is the complete absence of anything bearing upon the particular virtues, their origin and ground, and upon the practical problems which the science of ethics is called upon to solve. Nevertheless, I consider it a very useful little book, on the ground of its scholarly and earnest spirit.

Professor Bowne's volume is the most advanced work on the list. It is intended for collegiate classes only, and includes a discussion of both theoretical and practical questions. I regard it as the best book that has come from Professor Bowne's pen. The treatment of various mooted questions is, on the whole, fair and judicious. Occasionally a sharp thrust is made which, after all, is too entertaining to be minded, although it is probably the result of classroom freedom that may well be omitted in a publication. For advanced work the volume is a good one, and might be used very successfully in introductory work if accompanied with sufficient historical and explanatory exposition. The style is very clear and intelligible. The point of view and doctrine maintained cannot be the subject of consideration here, since I am writing of it solely as a pedagogical instrument. In this respect I regard it as excellent, barring the defect of analysis, which should have been more complete. But this fault aside, one cannot refuse the work the merit of being the best in the field, according to my own idea of the matter. This praise is based upon the fairness with which both sides of ethical problems are stated. Teachers know the value of this spirit in an author, although it is often maintained at the expense of clearness, and to the dissatisfaction of those narrower minds who must be on one side or the other of a question. Although his style is a little dogmatic, Professor Bowne's admissions concerning opposing schools of thought will encourage a judicial spirit in the student, and this feature of the work will give it much pedagogical value. Some complaint can be made that the doctrine of evolution is not adequately treated, and that its importance has been minimized. I think the author correct in the limitations which he imposes upon the method of evolution, but in spite of admissions regarding its value there is some suspicion that they are grudgingly made, and I should have been glad to see a more elaborate discussion of the theory.

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VII

EDUCATION IN FOREIGN PERIODICALS

ORAL TEACHING

J. W. LANGSDON IN THE LONDON "JOURNAL OF EDUCATION"

"I have just come back from Germany very deeply impressed with the results obtained in English and French in the two Realschulen that I visited there. These results are obtained on the Vietor system, as it was always called to me, though many other names may be mentioned, with corresponding modifications of method, in connection with the new school of modern language teaching in Germany. The theory, at least, of the system is known to readers of the *Journal*, and I only wish to add my testimony as to its practical success. In Bockenheim (Frankfort) the third class, taken by the Director, Dr. Walter, have been learning English for twelve weeks at five hours a week. The average age is thirteen, and the number of boys thirty-eight. The whole lesson is done by word of mouth and blackboard; no books are used. The boys understand readily; they respond easily and correctly, and the facility with which they guess the meaning of and pick up the pronunciation of new words by ear alone is—I speak without exaggeration—marvelous. Of course, their vocabulary is limited. The points I wish to dwell upon are the correctness of pronunciation and, more important still, of accent, the readiness in using the words they know and in forming new combinations, and the extreme eagerness and interest of the children. Of course, Dr. Walter is a teacher of exceptional power, but he assured me that since he adopted Professor Vietor's system he had been more successful and had fewer failures in his class. But I have seen the same system successful in the hands of very inexperienced teachers. In Marburg, Professor Vietor has managed to get permission to take the third class in English also. Most frequently the lessons were given by candidates for examination, quite inexperienced and often quite unknown to the children. But I always noticed the same points—extreme interest on the part of the children, readiness in replying and in picking up new words.

"For some time I have been trying to introduce more oral work into my own teaching, and am now more than ever convinced that, while our alphabet remains as it is, words must be heard before they are seen."

ON THE TRUE LEVER OF EDUCATION

H. G. WELLS IN THE LONDON "JOURNAL OF EDUCATION"

"I shall never believe very much in educational reformers until they commence a vigorous mission to examiners. Indeed, I would almost say that the examiner is, under existing conditions, the educational reformer's only legitimate game. But such a generalization as that requires consideration. Whether it is true or not, there can be no doubt that the educational reformer neglects the examiner shamefully. Reviling the 'fetish of examinations,' be it understood, is an altogether different thing. In that the element of personality is eliminated, and this factor is really the gist of the whole matter. To eliminate personality is always the trick of a reformer who is eager for a cause, but not earnest for a fight. Then, you see, there is nobody in particular to hit him back. But the worth of the cause is affected.

"Examinations may be anything, and indeed also almost, or even absolutely, nothing. 'The fetish of examination,' therefore, takes its particular character in particular cases through the intermediation of its priests. Where they are benevolent and wise, it is essentially a beneficent deity; and only where they are vain, weak, mean, or foolish, does it become a Juggernaut. The malignant and the misguided examiner are the real foemen of the teacher, and these we must carefully mark out, and then in due manner assail, if our world-mending enterprises are to be anything more than so much valiant defiance of windmills or mere beating of the air.

"The teacher may as well dream of getting himself made exempt from gravitation, or altogether fireproof, as to think he will some day be free of examiners, good or bad. The teacher must, from the nature of things, be under the heel of the examiner all his life, as inevitably as he must face death at the end of it. In the happily dying state of affairs, the parent—rather *both* parents, worse luck!—were his sole examiners *ex officio.* Their syllabus was rigid, but peculiar. Much attention was given to his personal appearance; he might, for instance, be plowed for hats, or be distrusted, and lose marks, through his necktie. His wife, too, was a 'compulsory subject,' and he had to steer her a difficult course between commonness and uppishness. Practical—even ostentatious—religion was a *sine quâ non*, and social science within limits. It was expected that he should sympathize with 'little Georgie,' be firm and kind in accordance with erratic and variable standards, and possess encyclopedic knowledge; but in this last requirement the examiners were anything but searching. Many of us have worked—and some are still working, some with special aptitude, and some with active protest, dying sullenly down to cynical acceptance in the course of time—to meet the requirements of this unwritten syllabus. Happily, nowadays, in many cases, the parent has seen fit to delegate his duties, and he will probably do still more in that direction in the future. At least one hopes so. Part of the bitter cry against set and definite examinations comes, I fancy, from the experts at the old requirements.

"And, in the future, if the titular examiner be torn down from his present eminence and altogether done away with, it will only be that something more indefinite and less accessible to criticism will replace him. There must always be some discrimination between teacher and teacher, unless each of those who would teach is given his mathematical share of the great total of youth—his quota of

$$\frac{\text{number of pupils}}{\text{number of teachers}}.$$

The teacher, if he does not prepare himself and his pupils for the sporadic or periodical inspection of a specially appointed and specially prepared authority, with some finality of decision, must work with an eye to a more informal judgment—to Governor A., who dislikes to hear boys about after mealtimes; to Governor B., with Macaulay's ideal of omniscience; to Governor C., who takes his stand on Rousseau; and to Governor D., who detests sports. The examiner, in short, the teacher has always with him, the shadow is he that displays the teacher's material solidity, and from the desk of the junior assistant he is by us, even to the grave.

"The teacher lives with the examiner as his dominant condition. But these educational reformers write as though the teacher had no conditions—as though he was as free as a Lamia to take whatever beautiful form he might fancy. They keep on writing for the teacher to do this and that and the other in the way of improvement, while they might as well preach perfection to the clay in the potter's hands. I suppose I have read in the last year in various publications more than a hundred new happy suggestions and incontrovertible criticisms of scholastic methods; how geography may be made a joy, science a discipline toward perfection, and history a dream of delight. And the old things go on. These improvements are no more than teachers' day dreams. The examiner pipes and the teacher must dance—and the examiner sticks to the old tune. If the educational reformers really wish the dance altered they must turn their attention from the dancers to the musicians.

"Something perhaps might be done by instituting examinations for examiners. Examiners are, in nine cases out of ten, simply experts at special branches of knowledge or art; they have about as much special aptitude and training to sort students, when they begin, as a class, as they have to cut out suits of clothes, or act as tea-tasters. The typical examination, two or three hours of hard writing, which is so commonly reviled as if it were the only kind of examination possible, is the natural refuge of these unfortunates. In many cases, being simple-minded seekers after truth or beauty, they are less qualified than common people to detect subterfuge and specious vagueness. In many cases their interest is not in examinations at all, and they follow precedents—indolently. In many cases they live, as it were, in the borderland of knowledge, and have forgotten the paths that led them there. They ask for conclusions that may be learnt by heart, and not for evidence of an intellectual process. Like worthy mediæval householders, staff and scallop shell are evidence enough to them of a pilgrimage. In all these cases the examiners understand the subject of examination well enough, but the object not at all. They seem to think that the examination is a genteel substitute for a raffle of places—or it is an inexplicable duty, like a Philistine's church-going—or it is an insistence upon orthodoxy, like the Inquisition. And they keep on at the tune that chance or the spirit of mischief has put into their heads, and the teacher, perforce, dances thereunto.

"Perhaps the examiner who is an educational theorist is better than his peers. It may be. I believe indeed that if every examiner were forced to read something about, and think about, the theory of examinations, it would be very much better for us. But the great improvement needed is a moral one. Examiners examine so badly because they fail to appreciate their terrible responsibility. We want to awaken some inkling of this in their minds; to lift them out of their stupid moral insensibility. I believe if some examiners, complacent enough now, could be brought face to face with the mischief they are doing, in a concentrated concrete form, they would drop their brief authority forthwith and flee utterly away. What a terrible mass it would be in the aggregate—an inchoate horror wrought of minds that might have thought and were set to rote learning, minds that might have learnt and acted and were flattened out in books, souls that might have created, but instead they died, a Frankenstein monster of duty ill done, a living decay!

"The examiner should, in the first place, be a philosopher. Instead, for our examiners we take specialists. He should have considered before all things the relation of his particular culture to the whole world of human thought and action. He should have asked himself why his candidates are studying in his particular realm of excellence; how they may study at the greatest permanent profit to themselves, and how at the least. He should know enough of their thoughts and feelings to know how he looks in their eyes and in those of the teacher. He must be able to plan his questions so that proper methods must, in the phrase of the coach and examinee, *pay* for the examination, and improper methods be a waste of time. He must be a philosopher, then, in the old sense of having wide and comprehensive views, thinking of the scope of knowledge and of the aims and ends of things. After that he needs most urgently some actual experience of the kind of teaching he is to examine. And thirdly—essential, perhaps, but quite after these other things—comes an exhaustive knowledge of his subject.

"These specialists, on the other hand, have no sense of proportion. Each candidate seems to them to be an aspirant to specialization in their particular branches; at least they treat them as if they were such aspirants. The end of a secondary school course in English one would imagine to be a sufficient command of that language to read and appreciate the shades of an author's intention and to write and speak discriminatingly. Perhaps English is also useful as an exercise in classificatory method. The specialist examiner, however, would make it a field for recondite learning, and sets youngsters, who could as soon fly as write pure English, investigating the value of the terminal *t* in *that*. Again, in science, the specialist's ideal of a practical examination is to demand manipulation that will be useful for research. The London University examination in biology, which, if properly handled, might force upon every medical aspirant so much mental culture as a sound appreciation of organic evolution involves, is, among many excellences, disfigured by the extraordinary prominence given to certain tricks of dissection—the extraction, unbroken, of a very small organ (the ovary) from the earthworm, for instance, and the discovery of a minute branch of the tenth nerve in the rabbit. In training students to perform such dodges as these, the time of a teacher is necessarily taken from really educational work, and the mechanical crammer, endowed or unendowed, finds a sufficient excuse for his misdeeds in the examiner's weakness.

"There is a certain type of examiner whose idea seems to be just to take as little trouble as possible. Now practical examinations are a bother. So much has been said of the necessity of practical examinations in natural science and (in the form of oral tests) in languages, that they need hardly be advocated here. The principle that, to test a knowledge of things, especially in the case of the young, whose descriptive powers are feeble, one must examine with things, is a truism of educational science. Yet withal these practical examinations are long in coming. Examining bodies seem to be waiting for the schools to substitute practical for legendary teaching, before they make any innovation—a policy which certainly has a powerful element of permanence. Sometimes a well-meaning examiner admits the weakness of his position. At the last London Matriculation examination, for instance, the examiner in one particular science asked his candidates to describe only experiments they had actually seen.

"One can fancy what happened. Picture to yourself two candidates, A. and B.—A. from an experimental teacher, B. from the ideal mechanical crammer of the pedagogic fabulists. A. remembers the experiment distinctly, and the formulæ that represent it, piles up—in vast Cyclopean masses—his description, speaks of the pneumatic trough as a pan, call flasks bottles, and beakers glasses, wanders wordily, losing his thread and finding it again, and ends his career in a dirty smashed-up drawing of what he fancies he saw, and the correct formulæ. B., fresh from the hands of a patent grinding and polishing mill, disregards, of course, the examiner's admonition, and turns out from his memory a sketch he has learnt—by repeated copying—of the experiment in question. Pithy words explain this; no verbosity, no wordy clouding, no evidence whatever of the thought obscuring the thing. Picture now the assistant examiner weighing the two papers! How else can it be when a knowledge of things is tested by purely verbal methods?

"Unless they improve too rapidly—of which, at present, there is apparently no serious danger—teaching follows after examinations, formal or informal. There, then, is the objective point for the educational reformer. The teacher may be worried and made discontented, he may even 'quarrel with his bread and butter,' but the teacher will not be seriously affected, by any exhortations of the educational reformer in his direction. His answer—firm and, considering the provocation, remarkably inoffensive and quiet—to the reformer is this: 'Will you, please, mind your own particular business—over there—and leave me, for the present, alone?' So far as scope and method go, the examiner is the educational lever; and when the educational reformer is not at that lever he is, I humbly submit, wasting his time."

VIII

DISCUSSIONS

LARGE SCHOOL BOARDS OR SMALL?

Upon this subject there are as many opinions as there are different methods of electing boards of education. In Missouri, except in two or three cities having special charters, the boards of education in cities, towns, and villages, consist of six members only. A school board in this State is a body corporate, and is entirely distinct from and independent of the municipal government. Furthermore, in all the State educational institutions, controlled by a board of curators or regents, as in the case of the State university, or of the State normal schools, only a majority of said board of control can belong to one political party. If seven members constitute the board of curators of the State university, not more than four members can belong to either political party. This explanation will prepare the way for the remarks which I have been requested to submit upon the subject of school boards. To be more explicit, I will describe the simple plan pursued in the nomination of members of the board of education in this city, and which has been in successful operation for more than fifteen years.

About twenty years ago, and even several years later, many cities throughout the country were troubled with the school board question. The yearly elections called attention to some of the most glaring defects in the modes of selection then prevalent. It was quite evident that the city schools were, in too many cases, put directly under the control of partisan and sectarian influences. As the schools of this city had at no time been regarded as a party matter, several of the leading citizens of both great political parties decided to put the city schools on a non-partisan basis, and to give public expression to their views in the two city conventions. The position taken by these gentlemen was that the schools were organized and maintained by all the people for the children of the people living within the limits of the school district, and that in order to make the schools non-partisan and to place them beyond the pale of party politics, the board of education should be composed of three Democrats and three Republicans, and that only men of the highest integrity should be elected members of the board of education. The ideal proposed was that the schools should be managed on strictly business principles.

Members of the school board are elected for three years under the present law. The election takes place at the time of the city election. Members are voted for throughout the school district. The district at present contains a greater area than the corporate limits of the city. It is also arranged that the term of office of two members expires each year. These members do not belong to the same party.

A few sentences will make plain the mode of election. If the Democrats hold their city convention first, after all the nominations are made, and the local committees appointed, a resolution is introduced recommending two men, one a Republican and the other a Democrat, to be voted for by the citizens irrespective of party to fill the vacancies that will occur in the school board. Then when this recommendation is passed, the convention adjourns. It makes no difference which convention meets first, this action is taken. Of course, it is understood that the two men recommended are satisfactory to the representative men in both parties. The newspapers, public sentiment, and all good citizens indorse the policy. For example, the following was adopted by the Democratic city convention last March:

"Resolved, That the Democratic party of Kansas City will in the future, as it has in the past, maintain the integrity of the public school system and keep it entirely free from all political and sectarian influences, and in carrying out this object, this convention recommends that Crawford James and E. L. Martin be selected with Gardiner Lathrop and L. K. Thatcher to fill the vacancies occurring in the school board."[1]

Thus, back of the members of the board of education are all the citizens as represented by the two great political parties. This is, in my opinion, the best moral support that public officials can have.

Again, six men, selected as they are here, will do their work better and more efficiently than twelve or twenty-four.

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[1] Four were elected, owing to the fact that under the present charter, elections occur biennially.

The board being small, "speechifying" is entirely omitted. In eighteen years, no member of the board of education has ever made a speech at any session. Business is transacted in a quiet, energetic way.

At present the board of education of this city is composed of business and professional men. One has been a member of the board for seventeen years; the president, Judge R. L. Yeager, has been a member for nearly fourteen years; one for eleven years, one for nine years, one for six years, and one for more than a year. These gentlemen have the confidence of the people of the city. They are representative citizens. Since I have been in Kansas City, no scandal of any sort has ever been intimated in regard to the board of education or of any member thereof.

This method of selecting members of the school board is now known as the "Kansas City Plan," and it is in use in nearly all the towns of the State of Missouri. It is the best that I am acquainted with.

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ON SO-CALLED HONORARY DEGREES

The point made in the EDUCATIONAL REVIEW (IV: 208) against conferring the degree of Ph. D. as a mere honor, is well taken. I believe that a large majority, certainly a large proportion, of the college faculties in this country share your views. But what are they to do when boards of trustees take the matter in hand and grant the degree without consulting them? Cases have occurred where these bodies have not only acted without the sanction of the faculties whose masters they were, but against their vigorous protest. There are men, some of them prominent in educational circles, whose influence can be bought with such a low price. And there are boards of trustees short-sighted enough to suppose that the influence of such men will be of more value to an institution authorized to confer degrees, than a reputation for care in the bestowal of its honors. On the other hand, the mere requirement of post-graduate study and a thesis does not much mend matters. I have read a number of these productions, a few by American students in Germany, that are mere compilations, and evidently the work of persons who did not know what is meant by independent research. Yet they were published as dissertations for which the degree of Doctor of Philosophy had been given. The degree business in this country is a huge farce, and has long been so. Degree-conferring institutions are usually liberal in the inverse ratio to their importance. These things will never be otherwise until the intelligence of the governing boards of our colleges and universities rises far above the present average. Nor is it wise to assume that all college faculties are above reproach herein.

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GENERALIZATION IN ARITHMETIC.

In *Education as a Science*, Mr. Bain observes that mathematics " does not teach us how to observe, how to generalize." This statement is quoted with approval by Mr. W. H. Payne in the chapter on Education Values in his *Contributions to the Science of Education.* It is undoubtedly true of higher mathematics, where the observations and generalizations are not of sufficient difficulty to afford mental discipline for minds mature enough to grasp the subject ; but it is altogether different in the study of arithmetic.

In primary numbers, taught by the Grube or any rational method, there is a valuable education in quantitative observation. Compound numbers, taught objectively, is a subject which develops observation. The comparison of the solutions of similar problems, and the development of one class of questions from another, simply afford a training in observation.

I wish, however, more especially to protest against the fallacy that arithmetic, properly studied, does not teach the pupil how to generalize. It seems that this error depends for its current popularity on inferior methods of presenting that subject. Any student of mathematics who reads *The Teaching and History of Mathematics in the United States*[1] is forced to the conclusion that the mathematical teaching in this country has been of an inferior character, and that an improvement in methods was contemporaneous with the decline of

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[1] Published by the Bureau of Education, Washington, D. C.

English influence. Now, Mr. Bain is a Briton, and Mr. Payne seems to have accepted his criticism somewhat incautiously.

It is worthy of note that Mr. Bain does not say that mathematics does not teach how to apply principles. This seems to indicate that he approves of that teaching of arithmetic which satisfies itself with allowing pupils to learn rules and solve problems according to rule, *i. e.*, to proceed from the general to the particular. This, however, is unscientific. The scientific way of teaching arithmetic is to present the solutions of individual problems, and when these are understood, to have the members of the class make the corresponding general statement or, as it is commonly called, rule. This general statement should then be applied to the solution of similar problems. In the case of pupils who study arithmetic, this effort to generalize is of sufficient difficulty to afford valuable mental training.

I emphasize this because arithmetic lends itself in an easy and natural way to generalizations, which are essential to the proper presentation of the subject, and which are perhaps more important, inasmuch as they prepare the student for the more difficult generalizations of more abstruse studies.

A. F. AMES

RIVERSIDE, ILL.

IX

REVIEWS

English Education in the Elementary and Secondary Schools.—By ISAAC SHARPLESS, Sc. D., LL. D., President of Haverford College. New York: D. Appleton & Co., 1892, pp. xiii, 193. Price $1.00.

In no one of the leading civilized nations is education in so chaotic a state as in England. The traditional English policy of *laissez faire*—which really means, "Every man for himself and the devil take the hindmost"—has prevented any such firm grasp of the educational problem as Prussia, France, the United States, and many smaller countries have taken. It is hard to say positively, even now, whether, with all its broad privileges of suffrage, Great Britain's conscience has been aroused to the absolute necessity of popular education. Every step in the development of a free school system has been vigorously combated, and only the pressing necessities of party politics prevented a battle royal over the Free Education Act of 1891.

Secondary education is even worse off. The rich have the great Public Schools, and private establishments of very varying degrees of excellence, at their command; but the middle classes and the poorer elements of the population are virtually restricted to a technical education, or the scanty learning of night schools. The universities, again, are essentially aristocratic, and not in contact with the great mass of the population. It is this lack of public secondary schools, and the exclusive character of the universities, that have made the University Extension movement so significant and so successful in England. It is the absence of these conditions that renders the American imitation of that movement of so little value and importance. All this is very interesting, and American students of education ought to know about it, its causes and its results.

President Sharpless's book, however, will not render them any great amount of assistance. In a very matter-of-fact way he goes over, after Craik, the story of the English elementary school system since Bell and Lancaster. His facts are correct, and are stated in a logical order. Then follows a chapter on secondary schools, which is introduced by the truthful but discouraging statement that "there are no free secondary schools, and but few where the charges are within the compass of any but well-to-do" (he might have said "rich" people). The provisions for the training of teachers, the peculiarities of the great Public Schools, so-called, and the new movement for technical education are also described briefly.

The book is not lacking in information, but in style, in sympathy, in insight, and in power of comparative statement. It is very dry reading. It is not to be compared with Fraser's *Report on American Schools*, or with Matthew Arnold's last report on foreign schools. It is neither so well arranged nor so definite as Mr. James Russell Parsons' reports on the French and Prussian elementary schools. President Sharpless saw the surface of things, read the law and the Code, and evidently wrote hurriedly. He has not made nearly so good a book as he should have done.

N. M. B.

The Elements of Logic, Theoretical and Practical.—By JAMES H. HYSLOP, Ph. D., Instructor in Logic, Psychology, and Ethics, Columbia College. New York: Charles Scribner's Sons, 1892, pp. xi, 403.

Dr. Hyslop has certainly given us a stimulating text-book on logic. His treatment of the subject not only invites but compels the study of questions of fundamental importance, by the student who makes any attempt to master it. This characteristic results, in part, from his not having confined himself to matters that logicians are generally agreed on; in part from the thoroughness and candor with which he has discussed debatable questions. Dr. Hyslop not only tries to probe questions to the bottom, but his supreme motive evidently is to get at the truth.

For this reason his book constitutes an excellent introduction to the subject; the best, on the whole, that I know of. The student becomes acquainted with so many open questions that, if he has any aptitude for the subject, he will wish to investigate them further.

I am not, indeed, always able to agree with the author even when he expounds generally accepted views. Is it true, for example, that logic, as a science, aims to ascertain what are the laws of thought? J. S. Mill's definition—the science of those operations of the understanding that are engaged in the estimation of evidence—seems to me decidedly preferable, although even that does not cover the ground. Why is it, for example, that two capable men, with the same evidence before them, may sometimes honestly reach different conclusions? The same evidence *ought*, one would think, to lead to the same conclusions, but it often does not. Whose business is it to tell us how this happens? If it be said that it is the business of the psychologist, it will certainly be admitted that it is the business of the logician to point out the circumstances or describe the conditions under which belief is proper. Now, if I am right in holding with Fraser that *pure intellect*—intellect unmodified or colored by any element of feeling—would make *belief*, as contrasted with knowledge, impossible; if James is right, as I believe he is, in holding that "that is adjudged real" (or true, I suppose he would say) "which has intimate relation to our emotional and active life"—then intellectual elements, plus feelings of some kind, must be the cause of all *believing*, and the whole cause must be investigated by logic before it can describe the circumstances under which beliefs can be accepted as true.

Putting the same point in another way, logic still seems to be dominated by the conceptions of rational psychology. It seems to suppose that logicians are concerned only with purely intellectual operations, to the neglect of all other modes of mental activity. If the truth is, as I conceive it, that in reasoning—reaching conclusions in any department, except pure mathematics—some activity of our emotional nature is an indispensable prerequisite, logic is bound to take note of it, and until it does there will be an impassable chasm between the logic of books and the logic of life.

I demur also to Dr. Hyslop's account of the relations between logic and psychology. Psychology, he says, is the science of the efficient causes of mental phenomena, including the rational processes; logic, of the formal causes of thought, of valid rational processes. What Dr. Hyslop calls psychology, I should call metaphysics. Psychology, as a science of observation, and logic both deal with rational processes. Psychology describes them as they actually occur and ascertains laws of existence and sequence between them and other mental phenomena, and also between them and other mental phenomena on the one hand and the phenomena of the brain on the other. Logic marks out the course, so to say, which the mind ought to pursue in going from premises to conclusions. The ideal of one is to know what *is* in the sphere of a certain group of phenomena; the ideal of the other to know what *ought to be*.

Nor have I been convinced by Dr. Hyslop of the propriety of his distinction between what he calls mathematical concepts and qualitative concepts. The former denote, he says, a class of individuals "absolutely identical in kind"; the latter, a number of individuals "essentially different in kind, but with common properties of a character to justify the use of a common name." In the first case, "the comparison is between individual wholes, or properties, to which the common name applies in the same sense, and without a difference. In the other, the comparison is between individual wholes, or properties, to which the name applies with a difference." He gives "two" as an example of mathematical concepts, and "man" as an example of metaphysical concepts. "Two" represents the whole class of "twos," he thinks, "irrespective of the difference between common and accidental qualities; man, on the contrary, denotes individuals with such differences that no one of the individuals is wholly representative of the class." I confess I cannot see the difference. All "twos" are the same in the matter of *number;* all men in the matter of *rationality*. In order to seize upon the twoness of objects, I must abstract from their other qualities; in order to seize upon the rationality of men, I must abstract from their other qualities. In a word it appears to me that the mode of reaching the two classes of concepts and the nature of them, after we have reached them, is the same, and that there is, therefore, no reason for burdening logic with technical terms to describe them. J. P. GORDY

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Griechische Schulgrammatik.—Von Dr. WILHEM VOLLBRECHT, Oberlehrer am Gymnasium zu Ratzeburg. Leipzig: O. R. Reisland, 1892, pp. xviii, 267.

This book is the fruit of seven years' preparation and of many years' experience in teaching. In its production all works that have appeared of recent years, in any way bearing on the subject, have been consulted, but especial indebtedness is acknowledged to the works of Kern, Lattmann, von Bamberg, Grosser, Kaegi, Waldeck, von Hornemann, and to the new edition of Kühner, edited by von Blass, the proof sheets of which Dr. Vollbrecht had the opportunity of consulting.

The only excuse for a new Greek grammar is some improvement on those already existing, and this improvement, in the case in hand, is partly of the nature of a rebound from the too brief and incomplete lesson-books recently devised as a royal road to the acquisition of the Greek language; just as these very lesson-books were themselves a rebound from the former very prolix and philosophically abstract treatises so peculiar to German scholarship. It will thus be seen that Dr. Vollbrecht's effort is the same as that being made by our own instructors, *i. e.*, to strike a golden mean between the grammar too large for the ordinary student to comprehend and the one too brief to be in any sense complete. How well he has succeeded in the latter count may be judged from the fact that his grammar, printed in large, clear type, comprises some 260 pages against the 350 to 450 of our best Greek grammars. Notwithstanding all possible brevity in this *Schulgrammatik*, the *rationale* of forms and of the principles of syntax is not slighted. Indeed, this might be said to be the strong point of the book. If exception is taken to the inadequacy or incompleteness of some of the reasons for varying forms and peculiarities, it must be ascribed to the necessity, in the German mind, of accounting for everything, and, in this case, in terms comprehensible to the students of the Third Form (*Tertianer*).

The following are points of distinct advantage over any of our own Greek grammars: 1. So small a matter as, in the declensions, placing the vocatives *next* the nominatives has the effect of lessening at once the strain on the learner's memory. 2. The unnecessary parade of the *dual* number with all nouns and verbs, in spite of the fact that the cases where the student will ever meet such forms can be counted on the fingers' ends, is avoided by consigning them to small type. Everybody knows that the learning and reciting these forms not infrequently consumes an undue proportion of the student's time and energy. 3. Wherever simple verbs are treated they are immediately followed by their prepositional compounds and an explanation of the varying shades of meaning imparted to the original stems by the prefixed prepositions. This feature will be appreciated by those teachers who know how cloudy the average pupil's ideas on this subject are, from the very lack, no doubt, of some such systematic representation.

Noteworthy are the lists in the *Anhang* assigning to each variety of inflection all words used in Xenophon's *Anabasis*, and that, too, in the author's characteristically systematic arrangement, itself an education in the subject. Every earnest student has asked himself: How many words does this or that peculiar declension or conjugation affect? This book supplies the answer, and robs a very hazy and formidable subject of all its terrors. The table classifies the words under each declension and conjugation so that each variety of stem and even of accent is massed. There is a valid objection, however, to relegating such important material to an *Anhang*. Its appropriate place is at the end of each inflection.

In the treatment of syntax the salient points of difference between the grammar of Dr. Vollbrecht and those used in America is the development of each case from its primary and most obvious meanings to those more remote and abstract. And so in the treatment of tenses and modes. These subjects thus occupy a more considerable space in this grammar, notwithstanding its small size. From the development of the modes and tenses and the instructive *collocation* of the examples of their use, it is but a short step to the consideration of sentence binding, conjunctives, in the treatment of which subject our grammars are notoriously weak. Next follows naturally the display of the different principal and subordinate clauses, which are easily and briefly handled after the previous treatment of the modes and tenses.

The illustrations, which are copious throughout, are drawn when possible from Xenophon's *Anabasis;* other authors being resorted to where they offer better or perhaps the only illustrations. Teachers will generally agree with Dr. Vollbrecht's statement that these examples in the language of the pupil's daily lessons, and perhaps even familiar to him, are more effective than more far-fetched illustrations.

This grammar of Dr. Vollbrecht will well repay careful study by the progressive teacher, and is in line with such improvements as should be made in Greek grammars for our American schools.

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CLEVELAND, O.

Primer of the Gothic Language, with Grammar, Notes, and Glossary.— By JOSEPH WRIGHT, Ph. D. New York: Macmillan & Co., 1892, pp. xi, 247. Price $1.25.

Professor Wright has already given us two useful hand-books in this same series, viz., the Middle High German Primer, and the Old High German Primer, both published from the Clarendon Press in 1888. The present book, like its predecessors, aims to furnish beginners with an accurate outline of the main features of the language considered. The Old High German Primer did, in reality, much more than this, in that it justified—of course, still from an elementary standpoint—High German phonetic conditions. The Gothic Primer goes still further, since it enters more fully into the details of phonetics, Germanic and Gothic. It furnishes, in point of fact, both in phonology and in accidence much more than the mere elementary material that one would expect to find in a "primer," and might well have been put forth with a more ambitious title-page.

The contents of the book are in detail as follows. The first sixty-odd pages are given to phonetics. Almost an equal number are devoted to accidence. A short syntax considers elementary matters of case, adjectives, pronouns, and verbs. The last hundred pages contain extracts from the four Gospels and the Second Epistle of Timothy, preceded by a brief account of Ulfilas, the Gothic MSS., and the principal subsidia, and followed by the necessary notes and glosses.

Especial care has plainly been taken with the phonetic part of the book to make it clear and conclusive, and it is particularly to be recommended to workers in every department of Germanic philology. Its statements of the fundamental points that are the common property of all branches of the subject, are not only well and distinctly put, and in most instances without undue succinctness, but they are actually given in not a few cases in a more intelligible form than they are elsewhere to be found in English. The following plan is pursued: The sound values of the Gothic vowels and consonants are first elaborated. This is followed by a consideration of the primitive Germanic vowel system, the special Gothic development of the Germanic vowel system, and the Germanic equivalents of Gothic vowels. A chapter follows on Ablaut; one on the First Sound Shifting, Verner's Law, and other consonant changes in primitive Germanic; and a final one on the

Gothic development of the Germanic consonants. There is, of course, nothing original in all this matter, but authorities—notably Braune and Douse—have been intelligently used, and references to works of unquestioned character, like Brugmann's *Grammar*, Paul and Braune's *Beiträge*, and Feist's *Grundriss*, are made.

In the important matter of transliteration the editors of the Gothic texts are still, unfortunately, agreed to disagree, and each additional output must needs differentiate itself in one or the other of the few points of orthography that admit of varied representation. The text of the present book writes W, elsewhere sometimes V; Q, elsewhere sometimes KW (KV); and the special ligature, now commonly used, but elsewhere sometimes HW (HV); E and O are always given with the macron as sign of length. The pages of text are unusually clear in typography, and are consequently much more attractive than has often been the case in Gothic books. There are no normalizations, but idiosyncrasies in form or reading are properly cleared up in the notes, where their consideration belongs.

It is, happily, no longer necessary to justify the study of Gothic for the light it throws upon general Germanic conditions, but the time has come when it may even fairly be insisted upon as a fundamentally necessary adjunct to the scientific consideration of any one of the Germanic dialects, whether it be Anglo-Saxon, Old Norse, or German. Many of the colleges of the country already regularly offer it in their curricula, but with the excellent subsidia now at hand there should be an increased attention to its study. Balg's translation of Braune's *Gothic Grammar*, and Douse's admirable *Introduction to the Gothic of Ulfilas* covered the ground well before the appearance of the present book, but there was a distinct need of a more elementary work than either, and this place the *Primer* will undoubtedly fill. The author's prediction in the preface that "Anyone, who conscientiously works through the book, will not only gain a thorough elementary knowledge of Gothic but also of the principles of Germanic philology in general," is sure of realization.

WILLIAM H. CARPENTER

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A Practical Spanish Grammar, with Exercises and Themes.—By EUGENE W. MANNING, Ph. D., Professor of Modern Languages and Literature in De Pauw University. New York: Henry Holt & Co., 1891, pp. vi, 242. Price $1.00.

The situation of teachers of Spanish in our schools and colleges is growing better. Until the appearance of Professor Knapp's Spanish Grammar, now nearly ten years since, it was necessary for them either to use some one of the few and mostly poor grammars made to order in this country by some needy Spaniard, or to import from England a grammar rather expensive and probably not well adapted to American use.

Knapp's grammar was a great improvement and met a real need, but met it only partially. It was too big for the ordinary use of school or college; too big in part from irrelevant matter which would be out of place in any grammar, and in part from discussions out of place in any but a grammar for reference. Moreover, while Professor Knapp's knowledge of colloquial Spanish is probably greater than that of any native American, the purely philological statements in his book need to be scrutinized with great care. Yet, whatever its defects, it has been of great service to the teaching of Spanish in this country.

But with the growth of our relations with the Spanish-American countries and the consequent increase in the number of those who desire to form some acquaintance with the language, the need has been felt of a grammar of less ambitious aims than Knapp's, and with more certainty in the attainment of them. To meet the demand two grammars were published last summer, either of which is for all practical purposes a great advance on Knapp's—Edgren's, published by Heath, and Manning's, which forms the subject of this notice. It is not the intention of the present writer to institute a comparison between the two grammars, further than to say that Edgren's is substantially on the plan of Grandgent's well known Italian grammar, while Manning's resembles in its general arrangement the French grammars of Fasnacht and Chardenal. Edgren's leaves more for the teacher to do; whether or not this is an advantage depends somewhat on the teacher.

Manning's grammar well bears out the promise of the title, that of a practical Spanish grammar. It contains all that is necessary to form an introduction to the Spanish language and literature and very little besides, and the arrangement is intelligent, convenient, and easy for the student to understand. The exercises which follow each lesson contain perhaps too large a number of words for the student to fix them in his memory; certainly most teachers even would hardly like to promise to remember two or three hundred new words in a new language every week, especially when the new language was only a small part of what they had to learn and to do. But, as appears from the preface, this was adopted deliberately by the author; and, as the result of experience in the class room, must be received with due respect. It certainly falls in with the prevailing notion concerning the teaching of modern languages, that it is important to go over as much ground as possible. Much can be said for each of the two opposing systems, that of reading a large amount rapidly, and that of reading a small amount thoroughly; and there is nothing in Professor Manning's grammar which would prevent a judicious and capable teacher from following out the ideal system—a wise combination of the two.

The arrangement of the verbs, to which the author calls attention in the preface as entirely new, is admirable in compactness and completeness; even the treatment of the uses of the moods is as complete as can be desired in a grammar for ordinary college use. There is not much chance in a grammar of this sort for any great originality, the chief excellence must be in the adaptation to the work of teaching; and here the author seems to me to justify his claim to have had in mind the needs of classes. Every teacher has his own methods, and a book well adapted to one class room may not succeed so well in another. It is difficult, moreover, to judge with confidence of the pedagogical value of a book like this without actual trial, but I should begin the use of Professor Manning's grammar with the expectation of finding my first impressions as to its excellence confirmed.

The principal fault that I have observed in the book is the rather frequent use of slovenly English. What is meant, for example, by this sentence: "Except *n* and *l*, only *c* and *r* are capable of being doubled"? The constant use of parentheses, usually due to the author's desire to be concise, becomes at last irritating, and is not seldom a cause of obscurity. I fear that his views as to the use of *would* and *should*, judging from the indications in the exercises, would not commend themselves to a conscientious teacher of English. I am sorry to see him falling into Professor Knapp's besetting sin—not often, to be sure, as far as I have observed—and giving us what we do not ask for in a grammar and prefer to find somewhere else. Why should he tell us anything about the hopes and fears of the Spanish liberals? That has little or nothing to do with the history of the Spanish language. The historical sketch with which the grammar closes is sure to be useful and is in general to be commended; in so brief a sketch, however, the first two paragraphs, containing so much that in the nature of the case must remain uncertain, could very well have been compressed into three or four sentences.

Of actual mistakes I have observed very few, and those due no doubt to the effort for conciseness of expression. When it is said, "If one of the vowels of these combinations is accented, they generally do not form a diphthong," the author certainly cannot have forgotten *reino*, *habeis*, *causa*, etc.; the fault must be in the expression. Perhaps the explanation may be connected with the mysterious note 2 on page 5, a note which it may safely be said would forever remain a mystery to a beginner in Spanish. Having dismissed four of the cases of the Spanish Academy grammar, it is a pity that his courage did not go far enough to dismiss a fifth as well. And what is the use of giving an imperative of the third person? The author shows some sixty or seventy pages after the paradigm that it was not due to ignorance.

These, however, are small matters; it is more important to congratulate the author on having written a book which cannot fail to do much for the study of the tongue of Cervantes and Calderon.

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The Story of the Hills. A Popular Account of Mountains and How they were Made.—By Rev. H. N. HUTCHINSON, author of "The Autobiography of the Earth." New York: Macmillan & Co., 1892, pp. xiii, 357.

This is a book well fitted for school libraries, and one that might be read with interest and profit by all teachers of geography. As the author says in one of his sub-titles, it is "a book about mountains, for general readers." In the description of how mountains were formed, he says much about the formation of plains, rivers, lakes, and ocean beds. The author is conversant with all the modern geological theories, and although quite conservative in his views, he treats the subject in a scientific spirit, yet still in a truly popular manner. He not only tells what scientists now think to be true, but he also, in a parenthetical way, hits at many false notions that prevail among the general public. Probably a few examples illustrating this feature of the book might well be quoted. "In the great series of stratified rocks forming what is commonly called the crust of the earth (an unfortunate term which has survived the time when the interior of the earth was generally believed to be in a fiery molten condition, and covered by a thin coating of solid rock at the surface)," etc. (p. 151). "Fire and water are therefore very important geological agents; but we should say heat rather than fire, because the latter word might convey a false impression" (p. 155). "Now, all this solid masonry is the work of humble coral polypes (not 'insects')" (p. 170). "Such mountains have long been known in popular but unscientific language as 'burning mountains'—a term which is unfortunate, because they do not burn . . . like candles or gas jets" (p. 242). "The word 'ash' is used by geologists in a special sense; and volcanic ash is not, as might be supposed, a deposit of cinders, but mostly of dust" (p. 245). "And here we may remark that the flaring, colored pictures of Etna or Vesuvius in eruption . . . are by no means correct. The huge flames shooting up into the air are quite imaginary" (p. 253). "The words 'upheaval' and 'elevation,' in reference to movements of the earth's surface, are somewhat misleading" (p. 336). The reasons given why both the hottest sunshine and the coldest weather are found on mountain tops, are excellent.

With so many examples of the author's power to perceive and puncture popular errors, it seems strange that he should make a statement so glaringly false and misleading as his remark on p. 63 about the Arctic regions. "The frigid zones, round each of the poles, are regions of intense cold, where for six months of the year the sun is never seen." This error is so common that it may be well to say a few words in regard to it. The north frigid zone is twice as large as the whole United States. Only one spot in this region, the North Pole, which is about five hundred miles farther north than any traveler has yet gone, has six months of continuous night. In fact, more than half of the whole space—almost all of that which is inhabited—has continuous night, ranging only from twenty-four hours to three months. The author's error, therefore, is no less than it would be to say that "the climate of the United States is intensely cold, snow and ice remaining throughout the year," because it is true of the top of Pike's Peak.

The quotations from Ruskin and other authors are very appropriate and telling. The methodical arrangement of topics is good, and the illustrations, of which there are sixteen full-page ones, are fine.

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Physics by Experiment.—By EDWARD R. SHAW, Ph. D., Principal of the Yonkers (N. Y.) High School, and Lecturer in the School of Pedagogy, University of the City of New York. New York: Effingham Maynard & Co., 1892, pp. 320.

Laboratory Exercises in Elementary Physics.—By CHARLES R. ALLEN, S. B., Instructor in the New Bedford (Mass.) High School. New York: Henry Holt & Co., 1892, pp. 277.

The Socratic notion that all knowledge is a development from within, is gradually permeating modern education and is remodeling methods of teaching. This is proved by the fact that one by one text-books are appearing which throw the responsibility of original discovery upon the student, compelling him to a larger extent to do his own thinking, and, under skillful guidance by the teacher, to draw correct inferences from his own observation and experiment. Among recent publications of this class, Mr. Shaw's book deserves notice. It is happily named, and its plan and treatment accord well with the title. With no premature tell-tale information, which takes the element of curiosity out of his work, the student is at once launched upon a sea of experimentation, and is so carefully piloted that there is no danger of shipwreck, while his pleasure over newly discovered worlds is constant and intense. Nothing is told that he can discover for himself, and yet the knowledge is gained, with easy and natural steps, by means of apparatus that he has largely constructed himself.

The order pursued is: first, the experiment, with careful suggestions as to what to observe; second, a question or two to rightly direct the inference; third, a statement of the law discovered; fourth, questions and problems.

A noticeable feature of the book is the large amount of space given to the treatment of electricity—one-third of the whole number of pages being devoted to it, although only those phases which are of practical importance receive detailed attention. The accuracy with which electrical apparatus is explained, and the clearness with which the principles involved in the use of the telegraph, telephone, electric bell and other instruments are demonstrated, virtually do away with the difficulty which the ordinary beginner experiences in this branch of the study of physics.

The book claims to be only elementary. It is elementary in the sense of not dealing with what is technically known as "higher physics"; but every principle that is contained in an ordinary high-school course in physics is amply treated, or rather, found out by the student's individual experiments, while much of the book could be used with profit in the lower grammar grades. The order of topics, the inductive method of treatment, the expunging of what is purely theoretical, the adaptation of information to the growing interest of the student, the clear statements of results obtained by experiment —all are *prima facie* indications that the author is a practical teacher, who through years of labor has studied the needs of the pupil, as well as gained for himself a mastery of the subject-matter of physics.

Allen's *Laboratory Exercises* is intended to accompany any standard text-book on physics. There are two editions, one for the pupil and one for the teacher, the two differing only in some practical suggestions to the teacher that are not contained in the pupil's edition.

Beginning with magnetic phenomena, "where work is simplest and most stimulative to attention," other topics succeed in the following order: Current electricity, mensuration, density and specific gravity, heat, dynamics, light and sound. The mode of procedure is "through experiments involving the measurement of a single value by means of some single instrument, to the more complicated quantitative determination of dynamics." This rational progression from simple experiments to the more intricate is valuable, but the chief merit of the book lies in its full, lucid explanations and directions. Under each experiment are given a minute description of the apparatus, a statement of the object of the experiment, and the mode of manipulation. The majority of the experiments are original and novel, and where old familiar ones are used they are put forward in an attractive style.

It is, as its name indicates, a real guide to laboratory work. It demands of the student of physics that the results of his experiments be as carefully recorded as those of chemistry. For this purpose there are suggestive tables for recording graphically to the eye the results obtained. This method compels the student to keep a notebook, a method recognized as the only proper one in scientific study.

As a practical laboratory guide for teacher and pupil the book has no equal.

A. B. P.

Notes on Recent Pedagogical Literature.

FRENCH SCHOOLS THROUGH AMERICAN EYES. A Report to the New York State Department of Public Instruction.—By JAMES RUSSELL PARSONS, Jr., Inspector of Teachers' Classes. Syracuse, N. Y.: C. W. Bardeen, 1892, pp. 136. Price $1.00.

Students of education should insist that Mr. Parsons undertake for England, for Italy, for Austria, and for the Scandinavian countries what he has done so admirably for Prussia and for France. His description of elementary education in Prussia (EDUCATIONAL REVIEW, II: 99) is well known, and the present volume is in every respect its equal and in some its superior. In language, in arrangement, and in proportion it is a model report, and may well serve as a standard book of reference in the study of contemporary educational systems.

LE RÔLE SOCIALE DES UNIVERSITÉS—Par MAX LECLERC. Paris: Armand Colin, et cie, 1892, pp. 66. Price 1 fr.

M. Leclerc has written a vivacious and rose-colored account of the University Extension movement in England. He urges France to acquaint itself with this phase of university work, and imitate it as soon as the universities are reconstituted by law. But surely Paris has abounded for years in lectures and classes that are all that University Extension claims to be.

NUOVI SCRITTI PEDAGOGICI.—Di P. VILLARI. Firenze: Sansoni, 1891, pp. 374.

This volume brings together some of the educational essays of the distinguished scholar who was recently the Italian Minister of Public Instruction. The most important of them is the well-known one on manual training in elementary schools.

Villari identified himself with the manual training movement when it was new and unpopular, and by his report on what progress in manual training was being made elsewhere in Europe did much to make it understood and appreciated by his countrymen. The remaining essays are important contributions to the literature of secondary education.

MATHEMATICAL RECREATIONS AND PROBLEMS OF PAST AND PRESENT TIMES.—By W. W. ROUSE BALL, Fellow and Lecturer of Trinity College, Cambridge. London and New York: Macmillan & Co., 1892, pp. xii, 242. Price $2.25.

Students and teachers of mathematics will find this book of Mr. Ball's very entertaining and instructive, but it is not easy reading. It contributes, from one point of view, a good deal to our knowledge of the history of mathematics; from another, it clothes some leading mathematical abstractions with a concrete form, and so aids greatly in appreciating their full significance. It discusses problems of chess and cards, sailing quicker than the wind, the fifteen puzzle, magic squares, the quadrature of the circle, perpetual motion, hyperspace, and many similar topics in mathematical physics.

THE TEACHER'S MANUAL OF GEOGRAPHY.—By JACQUES W. REDWAY. Boston: D. C. Heath & Co., 1892, pp. 174.

This is worth all of the other teacher's aids in geographical teaching put together. It discusses fundamental principles and does not descend to devices; which must, after all, be worked out by every teacher to meet her own specific class-room needs. Modern scientific, not popular, geography is fully discussed by Mr. Redway, and a well-chosen bibliography is appended to his closing chapter. The book is to be unreservedly commended.

N. M. B.

X

EDITORIAL

The article by Mr. H. G. Wells, printed elsewhere in this issue, is respectfully commended to the attention of those persons who believe that education is to be reformed by means of examinations conducted by a specially constituted body, and to those who urge that degrees and other marks of academic distinction should be conferred upon examination only.

One of the most satisfactory sections of the law regarding the Regents of the University of the State of New York, passed last spring, is that which makes it a punishable offense to use the term "college" or "university," without proper authority either from the legislature or the Regents, after January 1, 1893. When that date arrives a good many bogus institutions of one kind or another will be forced to give up one of their chief means of imposing upon the public. Colleges of typewriting, of horseshoeing, of embalming, and other useful arts—all of which now exist—will also be obliged to seek some humbler and more fitting title.

A few weeks ago there assembled, and fulminated, in Newark, N. J., as intensely un-American and treasonable a body as this country has seen in a long time. It was called a German Catholic Congress, but it represented an element of population that is largely found among the Lutherans of the Mississippi Valley, as well as among the German-speaking Catholics. This congress was alien in speech and in spirit, and was treasonable in a true sense because it declared war upon cherished American institutions. It specifically indorsed the movement known as Cahenslyism, which is, however, no longer dangerous, and said some very reckless and untruthful things about the public school system. Numerically small as this body was, it unfortunately represented a well-organized and shrewdly manipulated constituency. There are not wanting signs that this constituency proposes to cripple the American system of common schools, if possible. Already in the State of Wisconsin it has captured one political party and forced a second into a cowardly disavowal of its convictions. In the neighboring State of Illinois, too, one political party is at its beck and call, while the other is only half-hearted in opposition to it. To his honor be it said, Governor Fifer of Illinois has boldly defended the common school system on the stump, and has declared his intention of holding fast to his principles even if temporary defeat for him and them be the result.

The question at issue with these German-speaking Catholics and Lutherans is whether the American Commonwealths shall or shall not pass and enforce a law that every child must receive an elementary education in the English language. It is a deliberate untruth to say that such a law imposes any harsh restrictions upon private or parochial schools, or that it interferes with a parent's right to bring up his children in the religious faith of his choice. It does nothing of the sort. But it does say that every child must, in the interest of social order and political prosperity, receive at least an elementary education in the English language. On this issue the battle must be joined. Neither the listlessness of the well-to-do nor the demagogic cries of politicians can postpone it much longer.

The sort of reverse that any genuinely broad and altruistic movement of this kind must meet with at first, is seen in the case of Faribault. Readers of the EDUCATIONAL REVIEW know what it is that has made that little Minnesota town famous. There an object lesson was being given, with a common sense school board as instructors, in the possibilities that a joining of forces by public and parochial schools affords. Intelligent people everywhere, including thousands of Catholics, were watching the experiment with sympathy and interest. The term of office of the school board expired, however, and in the resulting election extremists of both types joined hands to defeat the re-election of the men who had inaugurated the "Faribault plan." They were successful, and for the time being the development of the plan may be checked. The courage and statesmanship of Archbishop Ireland and the essential equity of the plan itself, however, afford the best of reasons for believing that the reverse is but temporary. Moreover, it is not at all certain that the newly elected school board will undo what has been accomplished by their predecessors.

The friends of educational reform in Ohio believe that a real step forward was taken at the last session of the legislature. Under the old law, which continues in operation until next May, teachers are employed, and salaries fixed, and the length of the school year, determined—beyond the minimum requirement of six months enforced by the laws of the State—by a district board of directors for each district, three in number; while a township board of education, consisting of one member of each of the boards of directors in the various districts, determines courses of study, selects text-books, and fixes the amount of the tax to be levied for school purposes. This division of authority, while apparently very simple, has led to many conflicts and misunderstandings. Moreover, it assumes that three men in every district can be found ready to do the work of school directors, and with intelligence enough to select good teachers and pay them a proper compensation for their work. It assumes, also, that the board that provides the money should not be the board that spends it.

The new law obviates these conflicts and escapes these false assumptions by doing away with the district board of directors altogether. The educational affairs of a township are to be in the hands of a township board, to consist of one member from each district in the township. If the schools are poor, everyone will know where the fault lies. In a word, the new law fixes the responsibility for the success of the schools on a single body, increases the probability that the schools will be managed by intelligence and competence, and that a higher tax will be levied for their maintenance, and leads logically to a measure that ought to do much to increase the efficiency of the public schools—township supervision.

The calendar for 1892, issued by the College of Preceptors in London, gives evidence that a great deal of excellent work is being done by that unique institution. Established in 1846 and incorporated by Royal Charter in 1849, the College has performed a great service both to teachers and to education generally. Periodical examinations are held at which teachers are tested as to their qualifications and fitness to give instruction. Diplomas are issued to those who pass these examinations satisfactorily, and they have come to have a recognized standing and significance. It is noteworthy that the theory and practice of education is included in every examination of this kind. In 1854 the College instituted examinations for pupils as well as for teachers, and many schools now submit their pupils to this test of their efficiency. During 1891 over 16,500 candidates for pupils' certificates were examined, and 4800 schools came under the influence of the College.

The College now occupies a commodious building in Bloomsbury Square, erected and furnished at a cost of about seventy-five thousand dollars. There lectures are given, and an educational library is maintained. All persons engaged in the work of education may be admitted to membership, if elected by this Council; but election is withheld unless the applicant has passed one of the College's examinations or its equivalent elsewhere. The present Dean of the College of Preceptors is Mr. H. W. Eve, the head master of University College School.

A recent German publication gives the number of Doktor-Dissertationen that have been issued under the auspices of the various universities of the empire during the five years ending with 1890, as 9082. Medicine heads the list with 4585 dissertations or more than half the total; while theology stands lowest with 48. The medical faculty of Würzburg seems to be most in repute, and heads the list with 881 theses. Berlin comes second with 707; Munich third with 566, Leipsic is last with only 3. On the other hand, in philosophy Leipsic stands at the head, having granted 662 degrees against 411 given at Berlin, and 88 at Würzburg. It is interesting to note that no degree in theology was given at Erlangen, Freiburg, Heidelberg, Jena, or Tübingen; while 12, or one-quarter of the entire number, are credited to Munich. In some of the universities there is little variation in the number of degrees given from year to year; in others there is a marked increase. Berlin rose from 190 in 1885 to 268 in 1890; Bonn from 65 to 130, Erlangen from 52 to 177; Rostock from 19 to 45. Breslau, Strasburg, and Tübingen show a slight decrease. In the entire period the whole number of degrees granted rose from 1491 in 1885-86 to 2043 in 1889-90.

Another set of statistics from the German universities that is always interesting relates to the number of foreigners enrolled among the students. During the last semester there were 28,053 students at the 21 universities, and of these 1862 were foreigners. The vast majority of them, 983, were studying philosophy and science; 465 pursued a medical course, 246 a law course, and 168 studied theology. Berlin claimed 568 of the number, Leipsic 242, Munich 190, Heidelberg 164, and Halle 114.

The nine Prussian universities are now more strongly manned than ever before. They command the services of 536 professors, 23 honorary professors, 384 Privat-Docents, and 73 "Sprach und Fachlehrer." There are 1221 teachers in all. The average professorial salary is 5534 marks, the minimum 1509 marks. The professor of law at Göttingen, von Ihering, who died a few months ago, received the largest salary, 12,600 marks. The extraordinary professors receive an average compensation of only 2248 marks.

The department of public instruction, in France, asks for 176,000,000 francs for next year's expenses. Of this sum, 15,000,000 francs are for higher education, 19,000,000 for secondary, and 125,000,000 for elementary. The remainder is needed for special schools and the central administration. Since 1875 the attendance at the university faculties has more than doubled. It is now over 22,000. At least half of this number are enrolled in Paris.

Of all European countries Greece alone consistently carries out the principle of free education from kindergarten to university. As a result it has a larger proportion of highly educated men than Germany. At the present time the University of Athens has no fewer than 2500 students. It so happens, however, that the national exchequer needs replenishing, and the prime minister, M. Tricoupis, has hit upon the idea of assessing a small tax upon students in the secondary schools and universities. He hopes in this way to raise about $250,000 annually.

The annual report of President Low of Columbia College is a businesslike review of the events of the past year in the history of that institution. It makes no new recommendations and discusses no distinctively educational questions. The purchase of a new site for the College and the great internal changes that have taken place in its organization, were made public at the time of their occurrence, and the country at large is reasonably well informed concerning them already. The fact, however, that any American institution for the higher education is courageous enough, and strong enough, to face the responsibilities involved in contracting to pay two millions of dollars for a new site, is worth repeating and emphasizing.

The statistics contained in the report are of general interest. The library was increased by 15,408 volumes, exclusive of pamphlets. The total enrollment of students was 1573, a falling off of 178 as compared with 1890–91. This loss was wholly in the Law School, and is only the anticipated result of raising the standard and increasing the efficiency of that department of the university. The students came from forty-one States and Territories and from twenty-one foreign countries, which makes Columbia anything but a "local institution."

Eighty-seven colleges, fourteen foreign institutions of collegiate rank, and nineteen medical schools were represented by their graduates on the Columbia roll. Indeed, Columbia's claim to be a university rests almost entirely upon the fact that a large proportion of its students—last year 29.30 per cent.—already hold a bachelor's degree. The undergraduates only amount to 18.98 per cent. of the student body; but non-graduate professional students of law, medicine, and applied science amount to 51.72 per cent. The teaching staff numbers 226, of whom 72 are of professorial rank. During the year the College received gifts amounting to $296,973.06, and pledges amounting to $289,000—a total of nearly $586,000. Degrees appear to be granted with some care, since only 269 were voted, although there were 337 candidates for them. Five honorary degrees were given by the Trustees, but happily these were empty titles and not the university honors of Master of Arts or Doctor of Philosophy.

If President Coulter is correct in his analysis and exposition of the true university spirit,[1] how can there be such a thing as a sectarian university? A sectarian institution of any kind gives its adhesion to some specific statement of principles. Such a statement must control and direct the activity of the institutions that profess their belief in it. A university, on the other hand, is for the purpose of discovering and teaching truth, not defending some form of statement. It would be embarrassing for an institution calling itself a sectarian university to discover, in the capacity of a "university," anything that contradicted the creed that it professed in its capacity as "sectarian." And yet, presumably intelligent men and women go up and down the country haranguing the multitude and begging endowments for "sectarian universities."

There was the usual representation from the leading colleges and secondary schools at the seventh annual meeting of the New England Association of Colleges and Preparatory Schools, held in Boston on October 14 and 15. The interest centered upon the discussion of the subject, "Methods of Determining the Qualifications of Candidates for Admission to College." It was opened by Mr. Francis A. Waterhouse, head master of the English High School, Boston. Mr. Waterhouse discussed the two methods of admission—by examination and by certificate—in a calm and deliberate way. His paper was substantially an argument for retaining the examination method, though he pointed out the wisdom of a combination of the certificate plan with that method under some circumstances. The inadequacy and the injustice, under certain conditions, of a single test—the examination—could, it was shown, be corrected by bringing to bear the candidate's school record. The wisdom of such a recommendation is obvious. As a matter of fact, it is the course adopted at present in many individual cases where the candidate's school record guarantees success, although his stated examination was a failure. Many candidates admitted in this way as special students afterward become "regular," and are numbered among the most successful.

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[1] See his article on pp. 366–71.

Admission by certificate is guarded in two ways—by inspection of accredited schools, and by "college criticism," *i. e.*, by determining from the student's first year in college whether he was adequately prepared. But, as was pointed out, the inspection of schools is apt to be lenient. When thorough, it is difficult, expensive, and for most colleges impracticable.

President Carter of Williams College declared himself a believer in the educational value of examinations, but he denied the fitness of the examination to test a candidate's preparation for college. It appears from an experience of eleven years that Williams College is unable to perceive any lowering of the standard of admission, or of the quality of the schools remaining accredited schools, under the certificate plan. Of course such facts do not of themselves establish the validity of the certificate plan; for, as Mr. Waterhouse pointed out, the preparatory schools are obliged to fit some of their pupils for colleges requiring examinations, and the effect of this requirement is felt throughout the entire school.

It was interesting to note during the discussion that several of the best known preparatory schools have declined to avail themselves of the privilege apparently implied in the certificate system. The teaching of such schools is not modified by either system of admission to college. They have a standard and they work to realize it. Moreover, all such schools agree that it is almost unknown to have a boy rejected who ought to be admitted, or *vice versa*.

The most outspoken opposition to the certificate plan, on the part of the preparatory schools, came from the principal of the Roxbury Latin School. He urged the very great educational effect of the examinations upon the aims and methods of the schools themselves, and pointed out that the Harvard admission examinations in geometry alone had revolutionized the teaching of that subject. The effect of the examinations in other subjects was hardly less striking. He believed that "the certificate system under existing conditions is as bad as it can be," and that those colleges that can afford to drop the certificate system should do so. But the testimony was by no means all opposed to the certificate plan. Some strong commendation of it was given by other colleges besides Williams, and by a number of the secondary schools.

Some details of the certificate system were characterized as humiliating and unnecessary; such as, inquiries concerning the exact amount of Latin read, or, if the prescribed number of lessons in Greek composition had actually been taken. It was, however, shown by representatives of colleges that such questions are necessary safeguards against misunderstandings, and as an assurance—from some schools—that the requisite amount of preparatory work has really been done—irrespective of the published course of study.

Such considerations lead to the conclusion that, in spite of the testimony in favor of admission by certificate, the time is not yet ripe: some modification of that plan or some wiser plan must be devised. Possibly the solution of the question will be found in the combination of the two methods of admission, a suggestion made both in the paper and during the discussion.

When President Eliot was called upon, late in the discussion, he affirmed his confidence in the examination method, both because the examination as at present conducted is a test of power and because of its effect upon the schools. Referring to his western trips during the past two years, President Eliot spoke of the great leniency with which the certificate system is administered by some colleges of the West, where a very short visit (an hour or less) by a single professor might be sufficient to place a school upon the list of accredited schools. Such inspection is manifestly worthless for the purpose of determining the organization and work of a school. President Eliot might have gone farther and stated that many a school is "accredited" by Western colleges and universities, and by Eastern ones too, that is never inspected at all by the college or university officers; so that the college or university has no knowledge whatever, from personal observation, of the work those schools are doing.

Professor Palmer's address on "Ethical Training in School and College," was a very conservative presentation of the subject. The old ground of the dangers involved in any direct moral instruction was traversed, and any instruction in ethics was relegated entirely to the college and the university. The distinction between ethics and morals was drawn. The danger of making children aware of the machinery of their own moral consciousness was well brought out. It might be said, of course, that a moral consciousness of some sort is sure to be developed, and that it is as desirable to stimulate and direct this as it is to rouse and train the pupil's intellectual activity and habits. Professor Palmer would make all ethical training in the school dogmatic in form, and restrict it to instruction in a sense of honor and common courtesy.

The discussion upon "Theoretical Knowledge and Practical Facility in Algebra," took a very practical turn. Professor Peirce showed that the number of fundamental principles with which it is essential that the elementary student should become acquainted is very small, and that facility in manipulation is, in elementary algebra, the great aim. This naturally led to recommending much practice in handling algebraic expressions, especially those expressions entirely literal. Professor Safford of Williams College urged again the necessity of more time for algebra, suggesting that the grammar school is the place where time is to be had for it.

An important duty was added to the work of the Committee to confer with the Commission of Colleges in New England on Admission Examinations, namely, that they consider some one subject of instruction at a time with a view to getting a consensus from the schools and the colleges concerning the amount, the selection of subject-matter, and the method of teaching. This, it will be observed, is exactly what the National Educational Association has undertaken systematically on a large scale.

EDUCATIONAL REVIEW

DECEMBER, 1892

I

THE EDUCATIONAL INFLUENCE OF DR. ARNOLD OF RUGBY

In response to the editor's invitation to say something on this subject, I would observe that Arnold's peculiar sphere as an educational reformer was the English Public School, an institution which has hardly a counterpart on this continent. The name itself is somewhat misleading to an American ear, since all the schools of this group, including Rugby, of which Arnold was the master, were originally private foundations, though they have become national in importance and the founder of Eton was a king. They are great boarding schools for the English nobility and gentry, to the formation of whose characters they have largely contributed, and to whom they are objects of strong traditional attachment, as anyone who visits Lord's cricket ground at the time when the public school matches are going on will plainly see.

The complaints against the Public Schools at the time when Arnold commenced his career as a reformer, were the narrow and antiquated character of the curriculum, the lack of moral influences, and the absence of religion. About the last defect much had been said by Wilberforce and other religious leaders. At Eton the curriculum was in those days almost entirely classical, even mathematics being taught out of school and not as a regular part of the course. Not only was the curriculum classical, but it was purely philological; it did not include ancient history or philosophy. Greek and Latin composition was the exercise most valued, and in this great excellence, for boys, was certainly attained, as an inspection of the *Musæ*

Etonenses will show. There was little effort on the part of the masters generally to exercise any moral influence over the boys, to mold their character, or impress them with a sense of responsibility. The boys were left to be a law to each other, and their standard was simply that of the class from which they came: high in respect of manners and as to the point of honor, but with regard to morality not so high. The discipline consisted in a set of cast-iron and sometimes antiquated regulations, to which everybody rendered a sort of military obedience without asking the reason. It was enforced by a rather free use of corporal punishment, which, however, did not break the spirit of the boys or render them less sensitive about their honor, which they were ready enough to avenge by fighting whenever they deemed themselves insulted. The religion had become formal, and, for an Eton boy at least, consisted mainly in compulsory attendance at a multiplicity of services performed by a reader and a choir in the college chapel, survivals of the complex ritual of the Catholic Middle Ages, which had degenerated into little more than roll-calls. It was said that a guileless boy had once gone to the head-master with some spiritual difficulty, and that the head-master, utterly taken aback by the unprecedented appeal, told him he would give him an order on the bookseller for a commentary on the Greek Testament.

The grand reform which Arnold, when appointed to the head-mastership of Rugby, determined to make, and in effect did make, cannot be better told than in his own words. "With regard to reforms at Rugby, give me credit, I must beg of you, for a most sincere desire to make it a place of Christian education. At the same time my object will be, if possible, to form Christian men, for Christian boys I can scarcely hope to make: I mean that, from the naturally imperfect state of boyhood, they are not susceptible of Christian principles in their full development upon their practice, and I suspect that a low standard of morals, in many respects, must be tolerated among them, as it was on a larger scale in what I consider the boyhood of the human race. But I believe that a great deal may be done, and I should be most unwilling to undertake the business, if I did not trust that much might be done."

His first object was to make the school Christian. He held that no parochial ministry could be more properly a cure of souls than that of the master of a school. When he is looking out for an under-master he wants a "Christian and a gentleman"; he even cares more about this than about scholarship; and to such he offers "a noble field of duty which he would not bestow on anyone who would undertake it without entering into the spirit of his system, heart and hand." His biographer, summing up a series of passages in the letters, says:

> What was his great object has already appeared from his letters; namely, the hope of making the school a place of really Christian education. These words in his mouth meant something very different from the general professions which every good teacher must be supposed to make, and which no teacher, even in the worst times of English education, could have openly ventured to disclaim; but it is exceedingly difficult so to explain them that they shall not seem to exceed or fall short of the truth. It was not an attempt merely to give more theological instruction, or to introduce sacred words into school admonitions; there may have been some occasions for religious advice that might have been turned to more advantage, some religious practices which might have been more constantly or effectually encouraged. His design arose out of the very nature of his office; the relation of an instructor to his pupils was to him, like all the other relations of human life, only in a healthy state when subordinate to their common relation to God. The idea of a Christian school, again, was to him the natural result, so to speak, of the very idea of a school in itself; exactly as the idea of a Christian state seemed to him to be involved in the very idea of a state itself. The intellectual training was not for a moment underrated, and the machinery of the school was left to have its own way. But he looked upon the whole as bearing on the advancement of the one end of all instruction and education; the boys were still treated as schoolboys, but as schoolboys who must grow up to be Christian men; whose age did not prevent their faults from being sins, or their excellencies from being noble and Christian virtues; whose situation did not of itself make the application of Christian principles to their daily lives an impracticable vision.

The chapel of Rugby school, unlike those of other Public Schools, became a real center of religious life. The sermons which Arnold preached in it were heard by his pupils with most intense interest, and produced a real effect upon their hearts. His other chief characteristic was the exercise of personal influence on his pupils. For this he was fitted by the force and excellence of his own character, and by his previous experience in the individual training of private pupils. He left a most distinct imprint on the characters of those who had been under him, and the Rugby men were recognized as a special type at the universities. This, of course, was not the feature of a system, but the prerogative of a man. Arnold also strove to cultivate a strong sense of moral responsibility among his boys, and make them instruments for elevating the moral character of each other, by developing the monitorial system and investing with high duties and responsibilities the boys of his sixth form. It was a question whether he did not go rather too far in this direction and produce in some of his sixth-form boys an exaggerated idea of their own position.

The system of discipline Arnold did not radically change. He retained corporal punishment, only reducing it to a minimum and substituting a large and, as some thought, rather lavish use of the expedient of removal from the school, which, however, he was careful to distinguish from the disgraceful penalty of expulsion. Upon the free use of removal he had resolved from the outset, and had determined to overcome any repugnance there might be to it on the part of his trustees on the ground of loss of pupils to the school.

In enforcing industry he had an advantage over his compeers at Eton and Harrow, which are the special schools of the aristocracy, in having to deal principally with the sons of the professional and mercantile classes, of whose homes industry, not pleasure, was the law.

He retained the classical curriculum, while he gave mathematics a better place than they had at Eton. But he liberalized it by rendering it less exclusively philological and introducing ancient history and philosophy—his own favorite studies. His pupils, when they came up to Oxford or Cambridge, distinguished themselves less by purely philological knowledge or skill in Latin and Greek composition than by precocious excellence as essayists, of which Arthur Hugh Clough, among others, was a remarkable example.

Before Arnold's time the calling of a schoolmaster had not been regarded as high, though the head masters of the great Public Schools, whose salaries were princely, and who had the sons of the nobility and gentry for their pupils, enjoyed a certain degree of dignity. An English gentleman would by no means have been pleased to hear that his son was going to be a schoolmaster. But Arnold, by elevating the calling in his own person, raised it greatly in general estimation. Of his services to British education this is not the least.

Hence it would appear that to the educational system of this continent Arnold and his reforms have little relation. His leading ideas were religion and the moral influence of the master upon the character of the pupil; of which the first is excluded by our system, while the second occupies a subordinate position, if it can be said to be systematically exerted at all. His exclusive field of operation was a British Public School, that is, as has already been said, a great boarding school for the sons of the English nobility and gentry. To the question of popular education his thoughts do not seem to have been turned. The only allusion to it, so far as I recollect, in his letters, is a passage where he scouts the idea of improving the state of the people by education so long as their moral and social condition remains unchanged. It seems by no means certain that he would have regarded with favor a machinery of popular instruction, however well organized, apart from religious or moral education.

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II

GERMAN CONTRIBUTIONS TO THE CO-ORDINATION OF STUDIES

The co-ordination of studies involves three things: First, the choice of studies; second, the order and rate of progress in each branch; and third, the knitting together of these parallel-lying studies so that the greatest possible unity of knowledge may arise from the diversity of subjects. This third point is co-ordination in the narrow sense of the term, but it cannot be adequately discussed without reference to the first two points.

The prevailing doctrines of educational writings in English as to the choice and arrangement of studies seem to be as follows: First, the choice of studies for discipline, and second, for knowledge; and then an adjustment of these studies both in their parts and in their order of sequence, according to the supposed needs of the various faculties of the mind. There must, in other words, be studies for forming or disciplining the mind, and others for informing it, or giving it practical and useful knowledge. Furthermore, the faculties of perception, imagination, reason, will, and the like, must be properly trained, each having assigned to its supposed needs an appropriate subject-matter, fixed as to time and amount.

Now, so totally different is this view from that to be developed in the present paper that our pet idea of formal culture without any knowledge to speak of, seems like the development of a fine digestive power through the mastication of India rubber. If we only chew hard enough, it makes no difference whether we get any nutriment or not.

Again, could these gentlemen understand the full extent of our devotion to the old "faculty" idea, they would, doubtless, exclaim, "Do they still see hostile giants in windmills?" "The fact of variety in the forms of mental activity," they say, "no more indicates 'faculties' as organs of the mind than the bumps on one's head indicate organs of the brain." And to them it would seem quite as reasonable for the phrenologist to try to develop desirable bumps by specific educational training, as for us to attempt to train these hypothetical "faculties" by assigning to each a certain amount of training predetermined as to matter, kind, and time.

In this country we have hardly conceived the idea of co-ordination of studies, in the German sense of the term, much less worked it out. The reason for this is to be found in our psychology. To one who regards the mind as made up of discrete faculties, arising at different times, progressing at different rates, and developing in substantial independence of one another, the idea of bringing unity into the diversity of study could hardly arise, or, arising, could not be deemed important. If the will is an innate power of the mind practically independent of knowledge, as is often, consciously or unconsciously, assumed by our current psychology, then of course it is idle to try to train the will through instruction in the common branches of study, or to try to bring about such an organization of studies as will develop volitional power along right lines.

Reason, being a wholly different process from imagination or perception, needs a specific subject-matter and method; hence any co-ordination of studies designed to bring about the common well-being of all these faculties at once, can be ascribed only to a mind whose "faculties" have become confused. If, therefore, we have failed to attack the problems of education along these lines, the fact is to be ascribed to the peculiar character of our current psychology rather than to any indifference to important fields of educational thought.

But should our pyschology change, should we, to quote Professor Royce, conclude to walk through the "golden gates of apperception,"[1] it may be that we should pass, if not into a pedagogical paradise, at least out of a pedagogical desert. Should we come to regard the mind as organized activity rather than as a group of disconnected organs, should we think of every form of mental activity as dependent upon all others for its potency and significance, then our whole pedagogical attitude would change. If, when we get beyond the initial stages of infancy, knowledge is necessary in order to get knowledge, and what we get is measured substantially by what we have; if all our useful interests in life arise from our comprehension of the relations of things; if our boasted will, even, is in bondage to knowledge and the interests growing out of it, then we are ready for the educational missionary who will point out the path of life. When, therefore, in the following pages statements appear strange, and quite different from our preconceived notions of them, we have only to remember the change of psychological basis, and we shall understand, even if we do not approve. The questions raised must ultimately be decided by determining which psychological view is the more true and fruitful, not by making faces or calling names. With as much sympathy, therefore, as we can conveniently command, let us examine these German ideas about the correlation or co-ordination of studies, hoping thereby to gain a new and fruitful method of approach to important educational themes, or, failing in this, at least to fortify our own theory with new facts and insights.

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[1] Educational Review, IV: 191.

Why, first of all, should we strive for any co-ordination of studies? Chiefly for three reasons, say the Herbartians, two psychological and one ethical.

Instead of regarding the self, or " I," as an empty point of personality, the same whether rich or barren in experience, whether ignorant or learned, we may think of the self, or ego, as a constantly growing, developing somewhat, whose true unity, or individuality, depends upon the unity that exists in its knowledge and experience in general. Abstracting from the content of my mental life, I am I only in the sense that an unrealized possibility is equal to nothing else; but not abstracting from what I know and feel and do, I am I to the extent that conscious unity exists among the various elements of my mental life. If my ideas cannot be related when they pertain to related things, to this extent I fail to realize my true being. One of the forms of insanity is plurality of mental existence. But this unity depends upon proper correlation of ideas. The elements in the content of our mental life must be organized so that unity of knowledge and consistency of feeling and volition may arise. Our interests grow out of our knowledge; our feelings, desires, and motives, are the natural consequents of our interests; our wills strive to realize the good to self revealed by motives based on knowledge. Symmetrical character is hardly conceivable aside from symmetrical co-ordinated knowledge. A man may indeed rule powerfully within a small range of concepts of which he is master, but put him into situations that he does not understand, and his customary strength becomes weakness. Much of a proper correlating of knowledge comes to us spontaneously in spite of teacher or text-book, yet it is easily conceivable that a proper progress in the sequence of topics in each subject, together with a happy juxtaposition of the related parts of all subjects, might aid materially in bringing our knowledge into a substantial unity. If each subject is to be an errant comet, pursuing its path independent of the others—if, in other words, disorganization and isolation of topics is to rule in our instruction—it is plain that the desirable unity of knowledge will not only not be promoted, but will actually be hindered; that consequently the teacher, in spite of his pious wish for the highest welfare of the pupil, may aid in making him a dependent being, whose atomized knowledge does him little or no good. Our desire to develop the individuality and power of the pupil can find its best realization, so far as instruction is concerned, in the best possible co-ordination of all the subjects that we teach. The first purpose of the co-ordination of studies is, therefore, the promotion of true unity and consistency in our mental life through instruction.

In the next place, knowledge gained at school may mean much or little for our subsequent careers. According to the formal-culture idea, the result of the training is largely independent of knowledge retained or interests awakened. If the urchin only buckles to and learns his lesson, he may forget it as soon as he likes: the advantage is still his, for he has had the discipline. There is, however, another way of looking at these matters, and that is this: if the lad remembers little of what he learns; if having learned to read he cares nothing for useful reading; if having been forced to acquire a certain mass of knowledge, no permanent effect remains upon his interests, tastes, or pursuit, then this formal training upon which we pride ourselves is practically worthless. It would have been better to let the boy pursue those occupations in which he had some interest, for only where there is interest in things learned can profit result. This is a Herbartian view. Now, the co-ordination of studies means their correlation; that is, it means that it shall enable the pupil to become conscious in one way or another of useful and interesting relations between the various topics of the various studies. Every child is sure to be interested in something, so that if he can see that other things are related to his favorite ones, life at once broadens before him. The basis of interest in study is laid when the child finds in the subject-matter of instruction that which appeals to his own thinking as valuable. He must understand it, therefore, primarily, in its relation to himself. The richer the content in his eyes, the more varied and intimate the relations that are revealed to him, the warmer is his interest, the more willingly he pursues study for its value in promoting the things of which he is most fond. Is it not plain, therefore, that the more knowledge is knit together, the more light one subject throws upon another, the richer will be his apprehension and the warmer his interest? For the reason, consequently, that co-ordination of studies promises to increase rapidly the pupil's power of apprehension and to promote his direct interest in what the school has to offer him, it seems worth working for.

It has been stated that there is one ethical reason for the co-ordination of studies. This, too, is an outcome of the new way of looking at psychology. A favorite notion with Germans, and perhaps with all Christian people, is that the school ought to develop the moral and religious character of pupils. The old way took but little note of the studies of the school as implements for this training, but relied mainly on authority, first of the Scriptures, and then of teachers, parents, etc. This is the natural outcome of a psychological system of discrete "faculties." But the German view of which I am writing, not underestimating the value of the old training, adds the important thought that the common school studies themselves may become no mean instruments for ethical culture. This idea is a natural outcome of the notion that interests, desires, and motives are formed in consequence of ideas gained through study and observation, and that consequently the will itself is directly dependent upon ideas, or knowledge, for its field of activity. To bring about unity or consistency in our volitional acts, therefore, it would seem that the body of knowledge in which volition has its roots should be unified to the greatest practicable extent. If knowledge lies in isolated tracts, it has in the first place little cumulative effect upon the motives of the child; and in the second place, even if each separate tract should give rise to its own little round of interests and motives, there is small probability that the resulting acts of will would of themselves drop into a co-ordinated line of consistent actions. In the scheme of co-ordination offered by Ziller and Rein, the humanistic studies, like religion, history, literature, form the leading group to which we are to look for a distinctly ethical content. These being well correlated, their effect upon the moral character is favorably augmented when the remaining studies of the curriculum are intimately united to them; for even when other subjects do not possess a distinctly ethical content, as in the cases of language, science, and mathematics, they favorably influence the character by augmenting the interest in the humanistic branches, and by giving to the character a strength and directness founded upon the conscious unity of the whole mental life. Dr. Rein sums the matter up as follows: "The ethical need demands that the teacher shall endeavor to concentrate the spiritual forces of the pupil, so that they shall not be dissipated, but shall in their union call forth strong, effective action. Without such concentration of mental forces no moral character is thinkable. But if the pupil is to be able to effect this concentration of his powers, the greatest care must be taken that his mental store be not broken up into disconnected parts, but unified to the greatest possible extent."

There is, in addition to these theoretical grounds, a practical reason for the proper co-ordination of studies that should cause us to listen to all serious propositions looking to that end. It is universally acknowledged that our present curriculum, if not already badly congested, is likely soon to become so. Subject after subject has been added, not from any demonstrated pedagogical need, but in obedience to popular demand, or to the professional zeal of specialists. The process is still continuing. Not only each newly developed branch of useful knowledge, but even every popular social reform (scientific temperance, for instance) demands a representation in the schoolroom. The result is often a detrimental atomization of the pupil's time and attention. Not having time to digest any subject thoroughly, he soon becomes a mere taster in all learning. The initial stages of our educational progress were brought about by men like Comenius and Pestalozzi, who were impelled more by their sympathies and instincts than by clear, analytical thinking; it would now seem that we are still following our instincts to put into the school everything good in itself, but that we are taking little heed of the effect upon the child. Nothing appears more essential to our further advance, therefore, than a rigid examination of the curriculum, that indispensable parts may be properly related, and needless ones eliminated.

Having examined briefly some of the reasons why co-ordination of studies is desirable, I may now turn to the interesting question: How is this co-ordination to be effected?

Roughly speaking, we may separate all studies into two groups: those belonging to the world of man, such as history, literature, art, language, etc., and those belonging to the world of nature. Having done this, we must, in order to understand the co-ordination to be described, go back to one of the antecedent propositions always assumed by Herbartian writers on co-ordination, to the effect that the ultimate purpose of all instruction is the foundation of strong moral character. Unless this is attained, they think that education may result in as much harm as good. Granting, however, that this ideal should ever hover over our teaching, no matter to what extent instruction may appear to deal with subject-matter that seems to be morally indifferent, then we see that those subjects should come into most prominence that have the greatest ethical value: for it is especially desirable that the leading interests of the child should be ethical; that all other groups of interest which instruction may be able to develop should serve to confirm and strengthen these moral ones.

The effort must therefore be made, first of all, to discover an effective principle of co-ordination for these subjects.

The first factor in the problem appears to be the fact that we have to do with a developing mind. In no two years of his life are the knowledge, apprehensive power, ruling interests, or educational needs of the child the same. He goes somewhat rapidly through a succession of epochs in his mental development. It is not sufficient, however, to demonstrate merely that the child passes through a succession of stages in his mental unfolding: we must have some idea of the nature of the development he goes through if we are to succeed in finding the best possible adjustment of subject-matter to those stages. The current conception of this matter is that it is the faculties that unfold in succession—perception, then imagination, then reason, etc.—so that our American pedagogy, in so far as it has any doctrine at all upon the subject, teaches us in a general way to follow this order in the presentation of topics. It is conceivable, further, that the stages of a child's development follow the natural unfolding of the subjects of study according to some logical principle, as, for instance, the order of evolution in biological sciences, or that of increase in complexity of numerical relations, as in mathematics. Were this the case, the key to the correlation of studies would be the most logical unfolding of the various studies as relatively completed sciences. This view, however, meets with serious difficulties, as we may see hereafter. But the thought over which Ziller and Rein most love to linger, and for which they cite a cloud of witnesses, is this: just as the embryo of one of the higher animals shows unmistakable evidence of passing through all the essential stages of development manifested by lower orders, so the child in his mental evolution passes through, in little, all those great culture epochs that have marked the development of the race. If, therefore, one would appeal to the understanding of the child, or touch the spring of his interest, or portray to him ethical relations capable of claiming his attention, one should be mindful of these epochs. We are fond of thinking of education as the process of realizing in each individual the experience of the race, but we have not emphasized the idea that the development of the child's thought is an epitome of the development of thought in the race. The critic is doubtless ready with objections to such a theory as this, but there will be time to consider them when it is clearly seen whether the idea is likely to prove fertile or barren.

If there is in reality such a parallelism between the successive stages of the child's mental growth and the culture epochs of the race as this theory claims, a striking advantage at once comes to view. The psychological principle coincides with the historical one of the material of study, so that without further search we have a common guide to the development of several branches, viz., those that record most clearly the early deeds of the race. But having a single principle of unfolding for several branches, we have at the same time the possibility of their correlation. The humanitarian studies, like history, literature, and language, form, as previously explained, the central leading group, since they above all others possess a strong ethical element. When, therefore, it is discovered that the psychological development of the child corresponds, step by step, to the historical growth in culture of the race, and that this race development is recorded in such studies as Biblical and other history, in literature, language, etc., then it would seem that we have found the first requisite for a successful correlation of studies. Such a principle gives us the key to the most vivid apprehension of the child, to his keenest interests, his most effective learning.

Ziller was the first to work out this idea in a practical way. Taking advantage of the fact that Biblical history is everywhere taught in German schools, he elaborated a double historical course for them, one Jewish, the other German. His only serious attempt to utilize literature proper, as a factor of this course, is found in the early years, where he selects twelve of Grimm's fairy tales for the first grade, and Robinson Crusoe for the second. Strange to say, the followers of Ziller still adhere rigidly to his selections. Later the Niebelungen Lieder and some of the Thüringer Sagen are used, but after this, not much attention is paid to literature as such. In the double historical series, effort is made to adjust the work for each year to the corresponding epochs in Jewish and German history. The following is the order of topics: First year, Grimm's Fairy Tales; second year, Robinson Crusoe; third year, (1) Bible stories from the time of the patriarchs, (2) Legends of Thuringia (Thüringer Sagen); fourth year, (1) Bible stories from the time of the Judges, then, of the Kings, (2) Niebelungen Tales; fifth year, (1) Bible stories from the time of Christ, (2) history of Henry I., Otto I., Charlemagne; sixth year, (1) Bible stories from the time of Christ, continued, (2) migration of the nations, Roman Empire and the Popes, the Crusades, the Middle Ages, Rudolph von Hapsburg; seventh year, (1) the Original Congregations or Churches, the Apostle Paul, (2) discovery of America and its first settlement, history of the Reformation, the Thirty Years' War; eighth year, (1) instruction in the catechism,

(2) Frederick the Great, the Napoleonic wars for independence, the restoration of the German Empire.

Were we to attempt to follow out the idea of making the historical or culture epochs a guide to correlation, we should have to drop the Bible history and take up literature in a more earnest manner. Mary E. Burt's *Literary Landmarks* would then become an invaluable guide for the early grades, since it contains the principle of arrangement of all important literature for children. Our Sunday schools might easily teach Bible history according to this idea, so that there might still be a correlation between it and the subjects taught in school. If all teachers are not yet convinced that there is an ethical content of much value in literature, such books as Denton J. Snider's commentaries on Homer, Dante, Shakspere, and Faust, and Dr. W. T. Harris's *Spiritual Sense of Dante* should convince them, if they are open to conviction.

Making the substitution of literature, which is open to us, for Bible history, which is not, we should apparently be nearly as well off for central ethical subjects as the Germans now are. We should make history and literature the leading ethical branches, whereas they take sacred and profane history.

Having decided what shall be our leading topics in the curriculum, and the principle for their development and correlation, it remains to consider briefly how the remaining subjects can be brought into relation to them.

In the first place, if human deeds, both real and ideal, must of necessity be the expression of the ethical forces at work in the world, it is clear that language is essential for their preservation and transmission. In language, therefore, we find the embodiment of the ethical, so that language study is merely the formal side of the curriculum. It ought consequently to lend itself, at least to some extent, to the same principle of development and co-ordination. Language, being only the vehicle of thought, may naturally be made to follow the evolution of thought. In this case language would have to be studied as a means for the expression and understanding of thought, not as an end in itself. This, for the present, disposes of the first, or humanistic group of studies—history, literature, language.

The second great group is that pertaining to nature—geography, the natural sciences, and mathematics. It seems rather evident that the task of correlation is more difficult from now on, since a historical principle is not so good a guide to the teaching of a science as to that of literature or history. The path of progress in science has been that which leads out of darkness into light, from error to truth. Who would, for instance, seriously teach alchemy before chemistry, or astrology before astronomy? We are fond, indeed, of telling our pupils about these beginnings of science, but we speak of them rather as items of interesting information than as necessary to an understanding of the science as it exists to-day. Yet a practical co-ordination is not wholly out of reach. It has long been a favorite idea with teachers that geography should be correlated with history. Not only must history have a place in which to unfold, but the unfolding itself has to a large extent been dependent upon the geographical features of the country—its mountains, rivers, seacoast, forests, and climate. Geography as a basis for history is now becoming an important subject of study in German universities. It may also be added that it is of vast importance in biological sciences. Thus we might study the Alps as a seat of history and at the same time devote a part of our attention to Alpine flora and fauna. In a sense, then, geography forms a link to bind together the deeds of man and the facts of nature. In a still larger sense, geography unites nature and man. In these modern times, commerce binds the whole world together. A man in North Dakota may exchange his wheat for the productions of any land under the sun. He contributes what he raises to the world, and the world will give him something of everything in return.

It is geography that first makes the child conscious of the reciprocity that exists in the world, for it shows him in a con-

CO-ORDINATED CURRICULUM—*A.* HUMANISTIC STUDIES

TIME.	I. HISTORICAL INSTRUCTION		II. ART INSTRUCTION		III. LANGUAGE		
	1. BIBLE HISTORY. (2 *hours per week.*)	2. PROFANE HISTORY. (2 *hours per week.*)	1. DRAWING. (2 *hours per week.*)	2. SINGING. (2 *hours per week.*)	1. GERMAN. (3 *hours.*)	2. LATIN. (6 *hours.*)	3. FRENCH. (3 *hours.*)
15–19 April	Israel under the kings. Saul: The people demand a king.	Greek history. Historical material taken from the age of mythology.	Hellenic architecture. Treasure house of Mycenæ.	Songs of Spring.	(*a*) Content. (*b*) Form, Essay; Our visit to the Preller gallery.	(*a*) Form. Irregular verbs. (*b*) Content, Stories of Grecian myths.	Analytical preparatory course. Repetition and drill for fixing the series.
21–26 April	Saul anointed king. Victory over the Ammonites.	The same continued. Gods and their worship.	The same continued. Lyon gate at Mycenæ. Cyclopean buildings. Doric order. Visit to architectural museum.	Songs of Spring.	(*a*) Content, "Hope," by Geibel. (*b*) Form, Copy essay. Corrections, Dictations.	(*a*) Form, Translation from German into Latin. (*b*) Content, Roman myths.	The same continued. Formation of series for pronunciation.
April 28 to May 3	The same.	Persian war. Battle of Marathon.	Triglyph of the Parthenon.	Songs of Spring.	(*a*) Content, "Hope." (*b*) Form, Correction of Dictation.	(*a*) Form, Review, Translation into Latin. (*b*) Content, as above.	New group: About hotels.
5–10 May	Jonathan and the battle with the Philistines.	The same continued.	Triglyph continued. Doric capital.	Songs of Spring.	(*a*) Content, Poem, Pleasures of Travel. (*b*) Form, Dictation, Apposition, Punctuation.	(*a*) Form, Continuation. (*b*) Content, Continuation.	About theaters.
12–17 May	Samuel lays down his office. Saul's disobedience.	Results of the battle. Miltiades's end.	Doric capital.	Songs of Spring.	(*a*) Content, Pleasures of Travel (cont.). (*b*) Form, The day after the Battle of Marathon.	(*a*) Content, Miltiades in Nepos. (*b*) Form, Review of grammar.	Continuation: Collection of groups.
19–24 May	Saul is rejected.	Destruction of Eretria. Review.	Base of the Doric column.	Songs of Spring.	(*a*) Content, Thunder storms. (*b*) Form, Dictation.	(*a*) Content, Life of Miltiades, Continuation. (*b*) Form, Continuation.	(*a*) Content, From the Life of Hercules. (*b*) Form, Recording the groups.
2–7 June	Saul and David. David becomes king.	Ionian revolt. (*a*) Darius against the Scythians. Land and people of Scythia.	Front tile of the Parthenon. Discussion.	Songs of Spring.	(*a*) Content, Corrections. New essay. Trip to Schwarzburg in the letter form.	(*a*) Content, Miltiades (Battle of Marathon). (*b*) Form, Review of grammar.	(*a*) Content, Hercules. (*b*) Form. Notebook on system. Rules of pronunciation.
9–14 June	The same continued. Goliath and David.	(*b*) The same continued. Histiæus and Miltiades.	The same continued.	Songs of Spring.	(*a*) The stars. (*b*) Essay, Corrections.	(*a*) Miltiades, Nepos plenior 10, 11. Battle of Marathon. (*b*) Grammar. Review.	(*a*) Hercules. (*b*) Notebook: était and avait.

CO-ORDINATED CURRICULUM—(*Continued*)—*B.* NATURE STUDIES

TIME.	1. GEOGRAPHY (2 *hours.*)	2. NATURAL HISTORY 1 P. M. outdoors. (1 *hour.*)	3. ARITHMETIC (2 *hours.*)	4. GEOMETRY (1 *hour.*)	5. PRACTICAL WORK (1½ *hours.*)	GYMNASTICS
15–19 April	Greece : Peloponnesus : Position, boundaries, form.	Garden and field : First stage, cultivated plants. Garden work.	Decimal system.	Triangles. Theorem of the outer angle.	Work in school garden—raising of plants to be studied.	Drill and outdoor exercises. Free gymnastics.
21–26 April	Peloponnesus : Relief, climate.	Seeds : Sprouting observed in garden.	Oral work in addition of decimal fractions.	Continuation. Sum of the outer angles.	Doric order. Triglyph.	Staff drill. Horizontal bar. Jumping.
April 28 to May 3	Peloponnesus : continuation. Landscape descriptions.	Continuation, and establishment of a herbarium.	Continuation.	Continuation.	Continuation.	Gymnastic drill for order. Parallel bars. Jumping.
5–10 May	Continuation	The garden in bloom. Observation of blossoms.	Continuation.	Continuation. Inner and outer angles of quadrilateral.	Doric capital (see Drawing).	Marching. Staff drill. Climbing and horizontal bar.
12–17 May	Middle Greece. Megara, Attica.	Review and summary of matter learned. The germs of plants.	Subtraction. Oral addition continued.	Continuation.	Continuation.	Staff. Parallel bars. Swing rings.
19–24 May	Continuation. Bœotia.	Continuation. Recording of results in notebooks. Further observation of growth.	Oral subtraction. Written work in addition.	Conclusion.	Completed.	Staff. Horizontal bar. Jumping.
2–7 June	Continuation. Phocis.	Stalk of grain. Leaf with axil. Tendrils of peas. Development of the potato.	Continuation.	(*a*) Work—exercises in measurement. (*b*) System—cases of coincidence.	Plan for front tile from the Parthenon.	Free gymnastics. Horizontal bar. Horse.
9–14 June	Continuation. Locris. Doris.	Gathering up and recording results.	(*a*) Work—comparison of heights in geography. (*b*) Subtraction of decimal fractions.	(*a*) As above. (*b*) Law of Coincidence.	Same projected.	Continuation. Rope jumping.

crete way through a study of productions, populations, transportation, and the like, how each man, by the division of labor, works for all other men, and is in turn served by the whole world. Whereas, for example, the Northern farmer gets food, clothing, shelter, education, literature, and general physical and spiritual comfort as a reward for his labor, an Indian in the same country might put forth more exertion, yet be able to support only the most miserable existence. Geography, then, connects history and science, and also reveals the most concrete modes of human reciprocity. It is, therefore, the natural link binding purely humanistic and purely scientific studies. Following this hint, we shall not find it difficult to make some sort of a correlation between our leading and our subordinate subjects. Dr. Rein calls attention to the fact that the will puts itself into relation to nature in order to bring it into the service of man; that human action is limited by moral examples and by the nature of things. Obedience to moral ideals limits the will as to ends, while obedience to the nature of things limits the will as to means. The ends for which men work, and the means by which they do it, should be brought to the mind of the child simultaneously. This will naturally enhance his interest in both. Dr. Charles P. McMurry of Normal, Ill., has just shown in detail, and in a sympathetic manner, how this co-ordination may be worked out practically.[2]

Finally, mathematics bears the same relation to science that language does to the humanistic studies. It is their formal side. If its real function is made apparent and its application concrete enough, sufficient correlation can be brought about to hold the pupil's interest for number and to enhance his interest in that which number measures.

This whole scheme of co-ordination is elaborately presented by Rein, Pickel, and Scheller in their *Theorie und Praxis des Volksschulunterrichts* for the first eight years of school life. It is exhibited and subjected to a thorough-going criticism in Lange's *Apperception*, soon to be issued in English by D. C. Heath & Co., on behalf of the Herbart Club. The best and most sympathetic statement of the case now in English is the volume by Professor McMurry referred to above.

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[2] See his *General Method*, Public School Journal Publishing Co., Bloomington, Ill., 1892.

The accompanying scheme of study[3] offered by Dr. Rein's Seminary for what would correspond to our sixth year of school life, will give an idea of how this kind of co-ordination works out in practice. It evidently leaves much to be desired, yet may serve a useful purpose. The studies are here arranged for the summer term, from April 15 to June 14.

This article has been written purely as an exposition, not at all as a critique of the German efforts at co-ordination. If we shall conclude ultimately that they have not exhausted the subject, we may at least thankfully acknowledge that it is something to have made a beginning.

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See pages 434-5

III

ENGLISH COMPOSITION IN COLLEGES

In noticing a recent treatise on rhetoric the *Nation* remarked that "a whole library of books on English composition would not teach a man to express himself on a subject beyond the range of his interest, his knowledge, or his natural capacity. Hence the discipline surest of success is to be sought in narration and description, in making abstracts from good models, and in translation. The thinking may be left to take care of itself." Again in a note on President Eliot's report of 1889–90, the same journal calls the especial attention of the reader to "what is said about the effort to improve the gift of expression in English at Harvard—a problem needlessly complicated, as we believe, by the endeavor to cultivate by one and the same exercise the art of clearly stating what a man has to tell, and to force the brain to think." What the *Nation* says may usually be taken as the result of thoughtful first-hand observation of someone qualified to observe and to judge. It is worth while, then, to examine these two statements a little further. In substance they agree, and they agree in recommending a kind of instruction which was more common a generation ago than now, and to which many a man of middle age will perhaps look back with misgivings or regret. The prevalent theory then was that rhetoric—the art of writing well—should be taught by a system in which precept played a larger part than practice, and in which practice was often subordinated to the academic study of so-called models of style. This theory was as a whole sound, for it was based on the well-tested and universally applicable principles of the Latin rhetoricians—abstract rules, smacking (to the taste of to-day) of Pope and Boileau, and well fortified with apposite illustrations from authors whose suave, dignified, and slightly pompous diction make them appear to the humble reader impossible and unattainable ideals. Such a method and its results may be seen at its best in almost any Roman Catholic college, or in Du Cygne's excellent *Ars Rhetorica*, from which docile English-speaking pupils are still taught to respond (in answer to the question: "Quid confert Imitatio ad eloquentiam?") that "Imitatio confert ut optimo cuique Authori similes in dicendo evadamus, et quae sunt in eo summa, diligenter prosequamur." Nor were the results of the older method unsatisfactory when the pupils received seriously and practiced earnestly the instruction given them. If you compare a paper published by the undergraduates of a Jesuit college with the average journal published by the undergraduates of a college in which "modern" methods of instruction are in full vogue, the former may generally be found to excel in the essential qualities of style. The disadvantage of such methods is, however, that the pupil rarely conceives of rhetoric as having much to do with his other work in college.

Lack of interest on the part of the student—this is the chief fault of what we may call the "old" system. The subjects prescribed for him were alien to his natural sympathies, remote in time and interest, foreign to his current thought and feeling. He translated—to follow the scheme the reviewer indicates—from Pliny or Lessing, he made abstracts of Burke's speeches, he described the battlefield of Marathon or narrated the chief events of the siege of Syracuse. But all this, however excellent drill it may have been in the abstract, merely led the ordinary student to pretend an interest in that which was really distasteful to him; forced him to abhor such tasks as irrational, and to associate all composition with the conscious act of parading other people's ideas in other people's fine garments. Style then became for him something external, not woven of his own thought and emotion, but gained by imitation of accepted models. He must, he was taught, try to write with the brilliancy of Macaulay, or the swinging ponderosity of De Quincey, or the aphoristic unction of Matthew Arnold. But he must always make his bricks with the straw and clay which the taskmaster furnishes; he must never forage for himself, never give his own thoughts the expression that seems to him natural and appropriate to them, never be taught how, with a given subject in mind, to collect information from the best and most suggestive sources, never be urged to ponder over and assimilate what he has read and heard until it becomes thoroughly his, never be aided in the art of arranging his own material so that it will be most intelligible and effective, never, in short, be helped to a man's birthright—that of mastering his own thought and conveying it by means of writing unchanged to the minds of others. Nor can we justly object, under such a system, to the idea that any subject matter will serve the student's turn. Why should it not? Unless we "needlessly complicate the matter by helping the student to think" about what he writes, he may as well choose for his exercise "Balaam" or "The Advantages of a Cheerful Spirit" as something about which he has already been thinking for himself. His duty is not to concern himself with the subject-matter of his work save as he can apply to it those principles of composition or of style which are most in favor with his preceptor. And so the pupil passes through the required routine, frequently in such a machine-like fashion that he never dreams that the art he is learning is one which he uses and is to use almost as often as his legs, or that both the theoretical and the practical part of his work is scarcely valuable at all if it does not bring him to that clear, terse, and strong thinking which is at the basis of clear, terse, and strong writing. To the young man trained in this fashion the study called rhetoric soon becomes a dim memory. The writer recently had occasion to question some twenty or more students, who had wholly or partially completed their regular course of work in various colleges and scientific schools, as to what they had done in "Rhetoric." They had all studied it for periods varying from one term to two years in the early part of their college curriculum, but scarcely one of them could remember the name of the text-book over which he had spent so many hours. The color, the size, the shape perhaps lingered in his memory, but not the author's name or method.

In recent years, however, a far different method of teaching English composition has been followed to a greater or less degree in many of our colleges—at Harvard, perhaps, in particular. There, several processes of development have been steadily going on. First, on the rapid advance of the elective system has followed the slow retreat of all prescribed studies, including that of English composition, which is now reduced to a full course in the Freshman year, and to half a course in the two succeeding years. This prescribed drill is supposed to be sufficient for the needs of the average student. A number of elective courses, however, both in theory and practice, fully provide for the needs of those who wish to carry their studies further. Second, the character of the prescribed work has been changing no less steadily. In the Freshman year, to be sure, the drill is formal, and almost entirely prefatory to really independent writing, but in the Sophomore year the class or kind of subject alone is indicated by the instructors, the subject itself being left to the choice of the student, who is encouraged by them to express in his written work his own more serious thoughts or fancies. In the Junior year, finally, the student chooses a subject of discussion from a list suggested by the instructors in various courses in philosophy, history, and science as fitting topics for investigation and thought. He is advised to write on subject-matter familiar to him through his other studies, to read on both sides of the question, and to let his thesis bear the marks, not merely of clever phrasing or purely rhetorical skill, but of thought, of judgment, and of logical power. Such is a fairly typical prescribed course in English composition in the college of to-day, differing widely—and, it seems to me, wisely—from that characteristic of the older method. In each case the groundwork is the same, a thorough theoretical training based on some particular treatise on rhetoric; but what follows is, according to the modern system, regulated by the principle that spontaneity is a prime requisite, that the pupil writes best and learns most when his subject-matter is to as great an extent as possible of his own choosing and prescribed by his own interests, although the transference of thought from one mind to another which rhetoric implies is in all cases one and the same effort, independent of the subject-matter which it concerns. Such a system proves itself successful by its success; the odium and irrational indifference with which an English department used frequently to be regarded has somewhat passed away, and teachers of rhetoric are beginning to be reckoned, not with unnatural taskmasters, but with other useful professors of other useful arts. We are, then, we may assume, on the right track in the main. But are there no further modifications of the system now in vogue that will make our teaching still more effective? With the same expenditure of force—to wit, with the same number of instructors, with the same working hours on the part of both student and lecturer (or theme-corrector), with the same mental wear and tear on both sides, can we not arrive at results even more satisfactory?

For, as a matter of fact, the English departments in our colleges, in spite of the rapid progress made of late years, are in many cases scarcely doing half the work that might on *a priori* grounds be expected from efficient organizations. At the outset the work is handicapped. Young men come to college at an average age of eighteen or nineteen, and frequently with more maturity of character than their ages would indicate. But in nine cases out of ten they come badly trained in English. This lack of training shows itself in two forms: inability—coming from lack of knowledge—to avoid plain grammatical errors, and inability—coming from lack of practice—to begin the work of writing in anything resembling a simple and businesslike manner. For half a year lecturing instructors and correcting instructors are obliged to spend the greater part of their time in discussing, in general and in particular, plain blunders of style which a boy of sixteen should have done with once for all, in elaborately explaining such fundamental principles as should have been familiar to the same boy as soon as the axioms of geometry, and in what seems for months a fruitless attempt to bring the class up to a general level of information and intelligence that will enable it to attack successfully the real problems which face the young writer.

Again, the old indifference still remains. In most colleges, and especially in scientific schools, the bulk of a class is indifferent to the study of rhetoric, as now taught, escapes and evades it, and comes out of it scarcely better than when it went in. The fact is that everybody—students under the charge of the department and critics outside—appreciate the artificial character of the present system. For artificial it is in essence as long as men write for the mere sake of writing, with no distinct desire to communicate thought. The stronger men, therefore,—the obviously necessary drill of the Freshman year over,—neglect routine work in composition on the ground, maintained often and in so many words by wiser heads than theirs, that when they have something to express there will be time enough to think about the various ways of expressing it. Weaker men, on the contrary, learn to regard English work as a sort of foppish literary self-adornment. The majority of the class goes meanwhile heedlessly on its way, writing themes by the recipes which are given them by the instructor or which they find current among their friends, in very much the same way that the careless schoolboy applies the same formula to example after example in a branch of mathematics which he neither enjoys, understands, nor sees the importance of. Instructors, on the contrary, mostly earnest men, work seriously at criticising themes into which the writers have never dreamed of putting serious work. Candidates for the degree of B. A. or B. S., as a result, in theses, in reports, in their private or public letters, often write in a slovenly, haphazard fashion which is the despair of all who think it necessary that any man old enough to vote should be able to express such matters as he may have to treat in writing accurately, clearly, and forcibly.

The plain fact is, it seems to me, that departments of rhetoric still neglect an important factor. The difficulty of getting boys well trained in habits of expression before they enter college we can leave to be settled by the growing movement which is bringing up the preparatory school to a proper level of efficiency. But the point often overlooked is that no man or boy can be made to write really well unless he writes for the purpose of expressing thought. It is possible, indeed, that he may be seized with a desire to express ideas of his own to his preceptor in rhetoric in the routine themes demanded of him, but that is unlikely. Writing for his instructor, and for him alone, he is tempted beyond his power of resistance to mold his thought to suit his expression, not his expression to suit his thought. But every student is continual writing, unconscious of rhetorical rules or with only a confused idea of them in his memory, without particular instruction, but under the most appropriate conditions, matter which in many cases is just what his instructor tries in vain to secure from him in his routine work. What could be better drill in composition than these reports, theses, and the like, prepared for his instructors in history, philosophy, or science? Given, for instance, various lectures or other sources of theoretical or practical information, what, the student is asked to report, is the effect of algæ growths in reservoirs and ponds, or what is to be said of pin bridges *versus* riveted bridges? Here the sound man comes to the front, not the turner of meaningless and quibbling phrases. The student who, in set works, in routine themes, broke every law of sense and taste in composition, now writes—clumsily, to be sure, but with his eye on what he wants to express and a steady effort to attain it. The man who thought punctuation a useless and finicky operation finds that he must master it if he wants to make perfectly intelligible what he has to say on metallurgical methods in the mines of Bolivia. The man who disdained the study of emphasis, climax, unity, or what not, finds it indispensable if he wants to make telling points in his plea for the abolition of grade crossings. Paragraph structure instantly becomes luminous, and even sentence structure, if the teacher is skillful in following out the connection between thought and expression. The clever artificiality vanishes and industry, sense, and sound thinking come to the front.

Such a system may seem identical with that mentioned as already in use at Harvard—the so-called forensic system. There is, however, a decided distinction between them: in the first the student still writes for the English instructor. In the system which I propose, with much diffidence but on the basis of actual experiment, the student, after the necessary drill of the Freshman or sub-Freshman year, never writes expressly for his English instructor, but always for the department to which by subject-matter his thesis or report actually belongs. Subjected to criticism from both sides, on the basis of thought and that of expression, by both departments working together for their common good, the thesis or theme is thus treated as it should be. It would be surprising to see how nearly identical in purpose and in effect the criticism given to the student by the specialist in the department to which his essay belongs by right of subject-matter is with that given him by his instructor in rhetoric, were it not obvious that the best writers in the faculty of any college, university, or even scientific school are rarely those who represent the department of rhetoric. How, indeed, could it be otherwise? Expression implies thought, and he who thinks most clearly, definitely, forcibly, and broadly is likely, unless he has great defects in training or taste, to write better than he who, however much he is interested in the so-called art of expression, has too frequently narrowed his interests and perhaps even debauched his intellect by confining himself for years to the incessant reading of themes merely made to order by tired, lazy, or indifferent students.

Of course any large college would encounter many and perhaps great difficulties in adopting such a system and in giving it an organic structure. But such experiments as I have been able to carry on in the Massachusetts Institute of Technology, with students preparing for the technical professions, and what I have seen of the success of the somewhat similar "forensic" system at Harvard, convince me that the reports and theses which most teachers of rhetoric have for years been passing by as unworthy of notice may be made of the greatest value in teaching college boys to write. Good elementary training, then, is what we need in the Freshman year; after that as many elective courses as seems advisable; but for the average man in his Sophomore, Junior, and Senior years, constant practice in writing about what he really knows, under the criticism not only of the instructors whose sole object is to teach him to write, but also of those who, in whatever way, lead him toward knowledge or help him to think for himself.

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IV

WHAT DOES THE OXFORD B. A. DEGREE REPRESENT?

It is almost impossible to make a statement to which there are no exceptions in regard to any English institution which reaches back into the centuries, and, like Topsy, has "growed." And having "growed" according to no considered and consistent system, it is usually an inextricable confusion of ancient privileges, modified, slowly and reluctantly, to meet the necessities of the present. This is especially true of the University of Oxford with its relations to the twenty-one colleges, each of which maintains some ancient custom or privilege of its own. But it may be said, in general, of the Oxford degree that it represents: first, a gentleman; second, fifty-four weeks of residence within one and one-half miles of Carfax, distributed over three years; and third, the passing of three examinations—Responsions ("Smalls"), First Public Examination ("Moderations"), and Second Public Examination ("Greats"). The degree may not, and usually does not, represent more than this. It must, ordinarily—it is difficult to make unqualified statements that are accurate—represent at least this.

I have said that the Oxford B. A. degree represents a gentleman. Not all Oxford men, however, are gentlemen. Last year an Oxford M. A., and a "coach" as well, was arrested for obtaining money under false pretenses. But the exception only proves the rule. The astonishment of the English public at the affair, and their readiness to believe the man out of his right mind, indicate the esteem in which the Oxford men are held. Every Oxford graduate is by law entitled to a title, that of esquire, which in England means something, especially at a dinner party, and by social custom is assured of honorable consideration. Until he proves the contrary, he is assumed to be a gentleman—an assumption justified by experience. The great body of Oxford graduates are the finest men that English institutions produce. Allowing for the immaturities of youth, the same characteristics are found in the undergraduates. In no other university in the world, probably, are gathered together three thousand young men of whom so large a proportion are polished gentlemen in bearing and manners. They may or may not be exact scholars. That is a matter of secondary importance. The Englishman's idea of the important thing in education was well expressed by John Locke to Lord Peterborough: "Your lordship would have your son's tutor a thorough scholar, and I think it not much matter whether he be any scholar or no; if he but understand Latin well and have a general scheme of the sciences, I think that enough. But I would have him well-bred and well tempered." Well-bred and well-tempered is the ideal of English education.

The Oxford B. A. degree must be, so to speak, slept for. Residence in Oxford during twelve terms is a *sine qua non*; except that certain concessions are allowed to members of the universities of Cambridge and Dublin, who may become "incorporated" into the University of Oxford. That is, they may be admitted to the same status and degree which they had in their own university. This applies to the graduates with all the degrees to which they have been admitted, as well as to the undergraduates. Lesser concessions are allowed to certain former students of certain affiliated institutions, such as the University of the Punjab, the University of the Cape of Good Hope, St. David's College, Lampeter, etc., by which the residence required within one and one-half miles of the center of Oxford is reduced to two years. But in all other cases the rule is inexorable; the candidate must have kept twelve terms of residence. (Easter and Trinity short terms, though reckoned as one for many purposes, are counted as two for purposes of residence. The requirement is therefore in reality nine terms of eight weeks each.) But, reduced to its last analysis, "keeping term" means that the undergraduate has slept in Oxford forty-two nights during that term. The following quotation is from a communication to the *Oxford Magazine* by D. G. Ritchie,

M. A., lecturer on Political Philosophy at Oxford and evidently an iconoclast: "The fact that a man who has *slept* a sufficient number of nights at Cambridge, need spend less time in order to get a degree in Oxford than the most distinguished graduate who has *studied* at Harvard or Berlin," etc. The *Statuta Universitatis Oxoniensis* are manifestly a matter of caprice and custom rather than of reason. The most distinguished graduate of Harvard or Berlin can enter Oxford only as a Freshman, because he has not resided in Oxford; whereas the graduates of the University of the Punjab are credited with one year's residence, and Dublin and Cambridge D. D.'s are "incorporated," with all their degrees intact, without one day's residence. And yet, perhaps, the one requirement most emphasized for the Oxford B. A. degree is this one of residence. We must bear in mind that, except this, there are at Oxford almost no requirements universally exacted of all the students of all the colleges. There is no classroom work, as in American colleges and universities, which a young man is of necessity compelled to attend. The college tutors give more or less individual instruction and advice, especially advice as to what to read next. The undergraduate is expected to call upon his college tutor perhaps once a week, but he does not always do so. There are excellent college and university lectures, but attendance is not compulsory, and there is no examination by the lecturer at the close. Each student does practically what he pleases in the matter of study. There is in reality no definite curriculum, and no definite work to do from day to day. In short, Oxford permits the sturdy young Englishman to cultivate his self-reliance and "expects every man to do his duty." She does, however, require him "on pain of a fine of five shillings" to file a statement before the end of the first week of term specifying "the examination for which he is preparing and the date at which he intends to enter for it."

We can now see some reason for the stress laid upon residence as a basis for a degree. And considering how the young men spend much of their time, in athletics and otherwise, in consequence of which they are of necessity outside of city limits more or less, I can well understand how the authorities, in despair of finding any other principle which should determine what residence at Oxford really meant, finally settled upon this: at least the young man must have slept there.

I do not seek to throw discredit upon residence in Oxford as a basis for the degree of B. A. In fact, I rather approve of it. No man, even though he may have gained honors in the University of the Punjab, ought to have the Oxford B. A. degree unless he has lived in Oxford. For, although the Oxford degree may not represent any unusual intellectual discipline, it is nevertheless an education of a most unique and valuable sort merely to live in an Oxford college in contact with the best culture that English life can produce. To have a home for some years in the glorious old college buildings, made venerable and sacred by age, beautiful beyond comparison with their gardens and towers; to live in the very room perhaps once occupied by men who have since moved the world by their thought or achievement; to be in the midst of the influence of such a city as Oxford, made illustrious by association with all that has made England great in the past and the present, full of monuments and memories which lift out of the commonplace and glorify the streets of this ancient seat of learning—all this may well be a spiritual new birth quite regardless of any intellectual discipline acquired in the meantime; which may be more or less—less rather than more, according to the judgment of many, if the young undergraduate is to get the best out of his life at Oxford.

I almost despair of being able to say what amount of intellectual discipline the Oxford B. A. degree represents. It depends altogether upon what ones of an almost unlimited number of options the particular individual selected, and what work he did in the subjects chosen. No one can form the slightest *a priori* idea of what a young man actually studied for an Oxford B. A. degree. It was, perhaps, law or theology or Sanskrit or mathematics or morphology. In Oxford (and at

Cambridge as well) the optional idea has been developed to an extreme. In the first place there are seven avenues to a degree; that is to say, there are seven "Schools" or groups of studies, which lead to the degree of B. A. These are: literæ humaniores, mathematics, modern history, theology, jurisprudence, natural science, and Oriental studies. Here are seven great "Schools" having almost nothing in common, and between them the candidate may choose. In each one of these there is allowed an indefinite number of choices. In fact, it is admitted that the possible choices and combinations require an expert to pass upon their validity. The matter is altogether too complicated for the ordinary Oxford professor or tutor engrossed in his work.

But one can be reasonably certain that the Oxford graduate passed an examination on as much Greek and Latin as the Greek text of the Gospels of St. Mark and St. John, and four books of the *Anabasis* or its equivalent, and four books of Cæsar's *Gallic War* or its equivalent—unless, indeed, he was "born in India of parents born in India." In that case he may have offered substitutes for the Gospels in Greek and also for either the *Anabasis* or the Cæsar, but not for both. The equivalent of four books of either the *Anabasis* or the *Gallic War* seems a small part of the classics to insist upon as a *sine qua non* for the degree of B. A. One would suppose that the authorities would require either more or less. But it is not always easy to discover the reasonableness of Oxford requirements. Oxford grants two degrees in music, Bachelor of Music and Doctor of Music, obtainable without any residence in the university and without any knowledge of the classical languages.

Oxford University, as such, holds no entrance examinations. It is open without respect of birth, age, or creed to all persons who satisfy the appointed officers that they are likely to derive educational advantages from its membership. A member of any one of the colleges, or of one of the Halls, is, as a matter of course, also a member of the university as soon as he matriculates. The colleges usually require the candidate for admission to pass an examination. But the standards of the various colleges differ, and an examination is not always required. Ordinarily no examination is required to enter one of the Halls, the member of which, however, matriculates as a member of the university. The student is advised to pass Responsions before he enters; but it is possible for him, if properly indorsed, to enter on general principles and pass Responsions by the close of the first year. Failure to pass an examination does not disqualify from a subsequent attempt. It is possible to reside at Oxford indefinitely without any great progress in intellectual matters from day to day. Indeed, one may safely assume that a young lord who maintains a suite of five or six elegantly furnished rooms in one of the colleges, with horses and carriages, and servants, and spends thereby $35,000 annually, must devote some time and thought to the expenditure, even if many thousands are given away to the athletic, literary, and musical institutions of the university.

But this is only one side of Oxford university life. Some of the colleges admit no member who does not give promise of being able to rank in the Honor List, and make it decidedly uncomfortable for all except men of good abilities, who are pursuing a course which will later reflect credit upon them and their college.

The young undergraduate who is in Oxford for the sake of Oxford, not for the sake of study, but who yet wishes to take a degree, finds that his first examination will be Responsions. In this examination he has a countless number of options. He must offer portions of one Greek book and of one Latin book, but he has practically the whole field of Greek and Latin literature to choose from. After a list of the chief writers of antiquity in the printed announcements, follows the statement: "Tutors of candidates who are desirous of offering books or authors not in the above list should write to the Chairman of the Board of Studies." The following schedule, one of many possible combinations, may indicate fairly

The Irreducible Minimum Requirement for the Oxford B. A. Degree.

- Responsions ("Smalls"):
  - Greek: *Anabasis*, any four consecutive books.
  - Latin: Cæsar, any four consecutive books.
  - Greek and Latin gramm and translation of English into Latin prose.
  - Arithmetic, and *either* Algebra, to Simple Equations, *or* Euclid, Books I and II.
- First Public Examination ("Moderations"):
  - Greek: Xenophon's *Memorabilia*, Books I, II, IV, and Herodotus, Books V and VI; Gospels of Mark and John, and the subject-matter of Acts.
  - Latin: Vergil, six books; translation of English into Latin prose.
  - Translation of passages of Greek and Latin books not especially prepared.
  - The elements of Algebra and Geometry.
- Second Public Examination ("Greats"):
  - Greek: Plato's *Republic*, Books I–IV.
  - Latin: Livy, Books XXI–XXIII.
  - Greek and Roman History.
  - Walker's *Elements of Political Economy*, and nineteen chapters of Adam Smith's *Wealth of Nations*.

The questions set in Greek and Latin at Responsions and the First Public Examination test mainly what is called at Oxford "scholarship," namely: the student's knowledge of the language. The candidate is requested to translate into English, give rules for syntax, etc. In the final, or Second Public Examination (known in the undergraduate world as "Greats"), there are questions in regard to the philosophy of Aristotle and Plato. The scope of the examinations is well known to the private tutors, or "coaches," who enable the undergraduate to confine his attention, if he be so disposed, strictly to that which will "count in the exams."

These examination questions are always published, and complete sets of them for many years back may be obtained at the Clarendon Press Depository, Oxford, by anyone desiring more exact information in regard to their scope and difficulty. They are not so difficult that the thought of them embitters Oxford undergraduate life. Indeed, to make them so would be inconsistent with the accepted theory of the purpose of residence in the university.

Yet if I did not emphasize the other side I should give a false impression. To say nothing of the intellectual life and influence of the older graduate members of the university, who are still in residence, the many tutors old and young, the Dons and Fellows devoting their lives to learning and extending the boundaries of human knowledge, there is also an intellectual undergraduate life of a high order. The above schedule gives the lowest possible requirement for the "pass" degree. It is far below the average work done for even the "pass" degree, and the "honor" degree is altogether a different matter. Many a full-brained Scotchman, having taken with distinction the degrees of A. B. and A. M. at a Scotch university, enters Oxford as a Freshman and begins a four years' struggle for the "honors" which secure to the victor a career in life. His English competitor, even if he sometimes joins the throng which called forth Matthew Arnold's sarcastic sentence, "There are our young barbarians all at play," yet finds the "play"—if athletics, as it usually is—not altogether a waste of time. And even if it were, he has spent the long vacations getting up his work so as to have time for some play while here. He has already, in the preparatory school, read most of the authors on which he will be examined here, and he devotes himself now to accuracy of scholarship and comprehension of the philosophy of the ancient world. He was no mean scholar, within certain lines, when he entered Oxford. He began Latin at seven years of age, and algebra, geometry, and Greek shortly after. He has read Latin and Greek, and not much of anything else, ever since. He can write excellent Latin verse. After a course in the University of London, perhaps, he enters Oxford as a Freshman. He still follows his specialty, knows thoroughly the history of Greece and

Rome, attends lectures on the philosophy of Aristotle and Plato, on the civilization, polity, art, and ethical theories of the Greeks, takes a "first" in "Greats," is appointed to a Fellowship, and is now fairly entered upon what will prove to be a distinguished career. This young Oxford graduate will be the Jowett or the Wallace or the Liddell of the next generation. His brothers, who took other courses, will enter into the work and the renown of the Bryces, the Rhyses, the Freemans, the Cases, and the Napiers of to-day.

It is clear then that an Oxford B. A. degree represents whatever its possessor chose to make it. As a measure of work done, it is somewhat elastic. It may in its best estate represent two widely differing but both valuable disciplines; a period of elegant leisure receptive to the influences of this ideal home of culture, or an intellectual training which, within somewhat restricted lines, is equal to that given anywhere in the world.

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V

THE CATHOLICS AND THE PUBLIC SCHOOLS: THE TRUE SIGNIFICANCE OF "TOLERARI POTEST"

The expansive interpretation given to the now famous decision *in re* Faribault and Stillwater, by a writer in the October number of the EDUCATIONAL REVIEW,[1] was no doubt a revelation to the non-Catholic reader. To the Catholic reader it was even more startling. Like a thunderbolt out of a clear sky it came without accountability. The wrathful clouds of controversy had blown over, the Faribault arrangement had dropped out of sight below the horizon, with a fervent *Deo gratias* from the lips of all lovers of peace. Consternation there might have been if the novelty of the experiment in this latest interpretation had not been so marked, at least for the Catholic reader.

To be told that the *Tolerari Potest* decision implied the admission, on the part of the Church, that the state in itself has the right to educate, gives rather a violent twist to Catholic tradition and teaching on this subject up to date. Novel indeed and wonderful are the hermeneutics which, out of so simple a phrase, have managed to reverse completely the attitude of the Church on education as it has hitherto been accepted by friends and foes alike. This signal distinction as a "hermeneut" must be accorded to Mr. John Conway. He has managed to make the lion and the lamb lie down together, albeit one must note that the lamb is inside the lion.

While no doubt the result proves eminently satisfactory to Mr. Conway, to others his method seems dubious. I for one —and I believe I am not quite alone—would call in question the processes of his accomplishment. His confident march to his goal does not inspire the same assurance in all. He bridges so many yawning chasms by the agility of imagination that we, who follow the slower ways of logic, stand aghast at his courage; we are loath to risk our necks even with his example before us. At the same time it is our privilege, and I need scarcely say our security, to survey the performance though we do not follow him. His first feat is to establish a comparison which he evidently construes into a canon of interpretation. He tells us that the value of the decision is not brought home by rendering *Tolerari Potest* into English. "The value of a phrase," he says, "whether theological or canonical, is not always acquired from a literal translation of the same." This of course is obvious. But not quite so plain is the conclusion that, *therefore*, *Tolerari Potest* has not its full value when literally rendered into English. The Latin word *habitus* he assures us does not enjoy its proper equivalent in the English *habit* as used in the theological definition of virtue. Granted: but I fail to see the illation Mr. Conway would derive from the analogy. Because the English *habit* is not the satisfactory equivalent of the Latin *habitus*, it does not follow that the English *can be tolerated* is not the faithful rendering of the Latin *Tolerari Potest*. Nor is it to be inferred, because some technical terms are not to be taken in their literal sense, that all technical terms are to be forced out of their literal meaning. We are informed by our "hermeneut" that the Sacred Congregation always gives a specific answer, no more and no less, to a specific question. "It answers: *licet*, it is lawful; or *non licet*, it is not lawful. It answers: *Tolerari Potest*, it can be tolerated; or *Tolerari non Potest*, it cannot be tolerated." Since then the Sacred Congregation specifically answered in this case *Tolerari Potest* to the query put to it, that body must have been no less specific than usual. That question must then have been: Can this arrangement, entered into by Archbishop Ireland under the alleged circumstances, be tolerated? As the question was put, so was it answered—no more and no less. If "fully approved" or "fully allowed" were the answer of the Sacred Congregation, the question propounded should have been equally explicit. Strange to say, the formulæ of answers used by the Sacred Congregation, cited by Mr. Conway, give us one form which would have fully covered his interpretation; yet this he entirely overlooks. If the decision of the Sacred Congregation in this case meant "fully approved" or "fully allowed," the form *licet*, both technically and literally, would have satisfied all demands. Either the Sacred Congregation became woefully confused in the application of its own formula or Mr. Conway's hermeneutics are sadly astray.

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[1] IV: 236.

The second peculiarity I discover in Mr. Conway's presentation is his use of Cardinal Ledochowski's letter relative to this decision. Nowhere in this letter do we find a single phrase which can be construed into the interpretation Mr. Conway would put upon the decision. We are told that this letter is in answer to one from Archbishop Ireland construing *Tolerari Potest* into "fully approved." The letter of the Archbishop of St. Paul, as printed in the Boston *Pilot* of June 18, 1892, I have now under my eyes. In it I find no attempt to construe the decision into a full approval, much less into an implication that the state has the right to educate. What I do find are some vague phrasings that have no meaning at all save in the light of a context and the circumstances under which the decision was given. His Grace of St. Paul does not even so much as mention the phrase, *Tolerari Potest*. Not once does he specifically consider the decision, but he does affirm "the inflexibility of the decrees of the Council of Baltimore" between which and Mr. Conway's interpretation there is no possible reconciliation. When we turn to Cardinal Ledochowski's answer we find him referring back to his first letter, accompanying the decision itself, as containing the legitimate interpretation. Here his Eminence speaks in explicit terms of the Faribault-Stillwater arrangement as an "*exceptional provision made under the force of circumstances*" and "*which cannot be directly approved by the Holy See*," though "*it may be tolerated*." To draw from the Cardinal's language a "full approval" would tax the ingenuity of a

Macchiavelli. I confess myself nonplused in the presence of Mr. Conway's methods.

But these are in truth minor points in his interpretation. We might even waive them as idiosyncrasies, not usually in vogue in hermeneutics, and accord him the distinction of sole inventor. But it is when we come to consider the decision itself that we find Mr. Conway excelling his own record. Strange as it may seem, he actually undertakes to interpret the meaning of a decision of the gravest character *without once citing it.* He has proposed to lay before the readers of the EDUCATIONAL REVIEW the significance of a much-disputed judgment, and yet withholds the language of that judgment from their consideration. The chief merit of such a procedure seems to be to make the decision of the Sacred Propaganda conspicuous by its absence. The oversight would scarce be tolerated under a strict construction of the canons of hermeneutics, but, as we have seen, Mr. Conway appears to prefer a place among the latitudinarians. Expansiveness rather than accuracy seems to be his deliberate choice. I will undertake to supply the deficiency caused by his oversight, for I think the citation of the language of the decision will enable the reader to come to a better understanding of its significance, though I am prepared to admit that this method may not be quite so satisfactory to Mr. Conway as his own. Here is the decision:

> Firmis in suo robore manentibus Decretis Conciliorum Baltimorensium supra scholas parochiales, compositio inita a R. P. D. Archiepiscopo Ireland relate ad scholas de Faribault et Stillwater, perpensis omnibus circumstantiis, tolerari potest.

Rendered into English, it reads:

> The decrees of the Councils of Baltimore on parochial schools remaining in their full force, the arrangement entered into by R. P. D. Archbishop Ireland relative to the Faribault and Stillwater schools, all the circumstances having been weighed, can be tolerated.

I have already pointed out the plethoric insufficiency of the English "fully approved" as a translation of *Tolerari Potest.* Fortunately the English language enjoys the use of the word *tolerate* quite as happily as the Latin; and we, whose mother-tongue it is, often find ourselves under the same necessity of tolerating by stress of circumstances what otherwise we would not suffer in long-tried patience. Among other afflictions which we thus tolerate we may mention latitudinarianism in hermeneutics, especially when expounded before a non-Catholic audience.

To make the force of the above decision more explicit, I will cite the provisions of the several Councils of Baltimore in regard to parochial schools. These Canons provide:[2]

> *a.*—That every pastor build and maintain a distinctly Catholic school in his parish as a remedy against the colorless instruction offered in the public schools, where religious training is as a rule excluded.
>
> *b.*—That, if he fail to do so within a specified time and through neglect, he be deprived of his charge by the Bishop.
>
> *c.*—That the solemn duty of aiding the pastor in his effort of providing "scholas parochiales et *vere Catholicas*" be imposed upon the faithful.

We furthermore find the Council of Baltimore declaring that "The education of Christian children is impossible without parochial or truly Catholic schools" (Conc. Pl. iii, t. i, vi n. 201). In addition, among the *condemned* propositions contained in the Syllabus of Pius IX., we find the following:

> Catholics may approve of a system of educating youth, unconnected with Catholic faith and the power of the Church, and which regards the knowledge of merely natural things, and only, or at least primarily, the ends of earthly social life.

And yet Mr. Conway would have us understand that the *Tolerari Potest* decision "fully approves" such a system and actually implies the principle that the state has the right to educate, in spite of the emphatic affirmation in this very decision that the Baltimore Decrees remain inviolate. I would prefer to believe that he was jesting, that his interpretation was simply a *jeu d'esprit* flung off in a moment of unusual good humor.

There is still another point, not touched upon by Mr. Conway, which may serve to further elucidate the value of this interesting decision. It is true that his peculiar method would scarcely admit of its consideration. But as I am not bound down by the rules which governed his exposition, I may venture to call attention to it. I note that the decision explicitly adverts to certain particular cases, viz., the schools at Faribault and Stillwater, and that it contains a clause referring to the peculiar circumstances attending these schools—*perpensis omnibus circumstantiis.* It is then the arrangement, entered into in regard to these two schools, under the special conditions or circumstances which obtained in these localities, that can be tolerated. The weight of the special circumstances, therefore, had much to do in bringing about a decision favoring toleration. It may be worth while to glance briefly at the circumstances alleged to have been existing in these localities. They were circumstances on the part of the parish—poverty, too poor to support a parochial school; circumstances on the part of the parishioners—their zeal could not be counted on; circumstances on the part of the school itself—such as Sisters as teachers, the catechism taught every day, books approved by the Ordinary, no removal of Catholic children to other schools, the good will and friendship of the school board, and the necessarily local and temporary character of the arrangement. Considering these alleged circumstances, it is not to be wondered at that toleration was accorded to this arrangement. Indeed it may be said that where a parochial school is impossible, owing to poverty, etc., no obligation lies on bishop, pastor, or people to do the impossible. Under such conditions the Sacred Congregation could scarcely exact a rigid fulfillment of the law. Indeed, I would wonder that something more than a bare toleration was not accorded, even a *licet*, where such untoward and unfavorable conditions are said to have prevailed, did I not know that the Baltimore Decrees and the constant teaching of the Church on education always stand in the way as invincible barriers to the recognition of a system of education repeatedly condemned by the Church. A *licet* might possibly have been open to misconstruction, as at least implicitly recognizing the principle of neutral education, *i. e.*, education divorced from the faith. Hence, notwithstanding the unfortunate circumstances alleged in the Faribault-Stillwater case, the Sacred Congregation was constrained to give a bare toleration.

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[2] See *American Ecclesiastical Review*, Supplement, June 2, 1892.

Mr. Conway's deduction that *Tolerari Potest* means "fully allowed" and implies the principle that the state has in itself the right to educate, will, I am afraid, scarcely sustain a closer inspection of the decision than he himself has given. It is true that he has waived any nearer approach to that momentous judgment than to compare a single phrase of it with the Latin word *habitus*. But this rare acquaintance scarcely justifies a dogmatic interpretation of its meaning. Much less does it give him the privilege of affirming that "our leading Catholic theologians and canonists and philosophers have taught the right of the state to give secular education" without citing a single theologian, canonist, or philosopher who has so taught. I must confess I have never heard of any so teaching. If Mr. Conway's acquaintance with them be as slight as his consideration of the *Tolerari Potest* decision, I am willing to make every allowance for his sweeping declaration.

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VI

THE MEMORY IN EDUCATION

For the sake of the argument to follow, I may venture to summarize the "new education" as follows: It insists on the training of the senses. It cultivates the powers of observation and discrimination. It studies the individuality of the pupil and encourages originality and spontaneity. It favors experiment and the use of the inductive and synthetic methods. It trains rather than instructs. It avoids symbols, preferring the real. A pedagogically inspired man of the last century, Jean Jacques Rousseau, popularized these principles and showed how to use them. By Pestalozzi and Froebel they were reduced to a method, which has grown steadily in favor to the present day. They are the educational correlatives of research, invention, progress, science. To repudiate them would be to ally one's self with the dry, dogmatic, memorizing methods of the Jesuit schools of the last century.

No world-moving reform in religion or morals equals this reform in education. Like all reforms, it came as a reaction. The educational method which it aimed to supplant was essentially *instruction* in *form*. It offered to the pupil finished results in language-form. Its receptive instrument was the memory. The formal memory was therefore well developed. When the Reformation came, it happened, in education as in religion, that the good was cast out with the bad. Memory-training, standing as it did for conservatism, for mechanical, superficial education, received its full share of odium. Montaigne's "Savoir par cœur n'est pas savoir" furnished the text for future decriers, and subsequent writers have cast every man his stone at the unfruitful practice of training the memory. Locke said that memory, not being a faculty of the mind, could not be improved by exercise. Children, according to Rousseau, "really have no memory," and "*Emile* shall never learn anything by heart." According to Kant, those with memory alone are but "living lexicons," "pack-horses of Parnassus," and the function of memory is to serve as handmaiden to the judgment. The crusade thus begun has to the present day been carried zealously on by almost every writer on the theory of education. It is needless to multiply quotations in condemnation of the memory-method. A single sentence only of a great American educator may be quoted. In his preface to Mr. Kay's book on Memory, where, if anywhere, one would expect some more hopeful words, Dr. William T. Harris says, "Memory is moribund, and in province after province it is losing its importance."

It has not been enough to condemn memory-training in education; it has even been doubted whether memory itself is of any especial value. Again a French motto serves as a text: "Beaucoup de mémoire, peu de jugement." This error, traceable to Joseph Scaliger, refuted by every psychologist since Sir William Hamilton, has nevertheless persisted in the popular mind. It is supported by the stock instances of the mathematical prodigies and the memory idiots. In an age prizing so highly independence of thought, no one hesitates between memory and judgment. So little is the retentive power valued that one may hear a person confess, without apparent shame, to a poor memory, who would rather die than acknowledge poor judgment.

Thus it has come about in educational circles that memory-training has been generally ignored or passed over with slight, patronizing attention. Somewhat as cerebral localization was left for many years to the school of Gall and Combe, so memory and memory-training in the present century have been championed only by such men as Stokes and Loisette. In our pedagogical literature little is found relating to memory, and in our schools little interest in the subject is shown. One finds here no knowledge of the psychology of memory, little attention to methods of training it, no distinction of the different sense-memories, no advantage taken of natural differences of eye- and ear-memory in different pupils. Some justification of this neglect is found in the extremely conservative character of schools. Owing to the inertia of school-governing bodies, pedagogical theory is always far in advance of pedagogical practice. In our schools to-day are actually found many of the abuses about which Rousseau raved one hundred and thirty years ago. There are paragraph-recitations and rote-learning and dry memorizing of useless stuff. It is not strange that educators, in trying to root out this evil, have failed to notice that the time has come for a reinstatement of memory study and training on a higher plane. Only recently, indeed, has the revival in psychology reached this branch of the subject. Now, interest has fairly been awakened by the important studies of Ebbinghaus, Fauth, Ribot, and Burnham.

Long continued disuse of any function, physiological or psychological, results in its deterioration. A century of neglect must show a loss in the power of memory. Precisely this has happened. We make no pretensions now of possessing the retentive powers of the ancients, as notable instances of which we recall the marvelous memories of Cyrus, Themistocles, Plato, Seneca, Hortensius, and Lucius Scipio. In comparison with the Schoolmen, the Hindoos, and the Japanese, we suffer still more. Among them we find examples of erudition not inferior to those of our own times, but the point is that, in general, what their scholars knew, they *knew*, what our scholars know, they *know where to find* in their libraries. Our modern loss of this power is less noticeable, however, both because, owing to our ever present written records and references, we have less daily need for memory, and because a high degree of specialization in modern life has developed in many people comparatively perfect special memories.

In this connection it is necessary to notice the statement, made by some psychologists, that a person's retentive power is limited by physiological conditions and cannot in particular cases be improved by training; which, if true, might lead to the supposition that no serious results would follow its long continued disuse. Against this is the general belief, founded apparently on everyday experience, that memory can be enormously improved by practice and training. The difficulty is not real. Perfect memory includes three processes, retention, representation, and recognition. Retention, as a purely physiological process, depending we may not doubt upon the circulation of the blood and the proper function of nervous elements, could not of course be improved by purely psychological methods; but to say that it could not be improved by training would be no truer than that the lungs or the muscles could not be strengthened by exercise. Certainly the retentive power may be increased by improving the general health. If, leaving the individual, we consider the effect of heredity, we cannot doubt that long continued use and reliance upon the retentive forces of the organism would greatly increase their efficacy. Again, the retention by the organism of any impression depends not only upon the physiological conditions above indicated, but also upon the strength of the original impression. The strength of the original impression depends much upon attention and interest. Attention and interest are susceptible of training. Concerning the second process in memory, viz.: representation or reproduction, it is unnecessary to show how readily this responds to education, owing to its dependence upon proper and easy associations and upon repetition. It cannot, therefore, be doubted that the omission of any especial attention to memory, in our educational plan, has been one of the causes of the decline of the power. Other causes, however, are numerous. This is an age of books and of printed and written records. With our indexes, and our bookkeepers, and our typewriters, and our newspapers, we no longer find it necessary to depend upon our memories for the preservation of the myriad events of our private and public life. Our reading habits, furthermore, are utterly destructive to memory. Our wholesale and superficial reading of new books and old books, of magazines and reviews, and especially of daily newspapers, makes the mind the recipient of an incessant stream of weak impressions which we could not retain if we would, and would not if we could. In our present manner of life the mind is becoming less like a storehouse and more like a clearing house. Ideas, like bank bills, are eagerly sought but seldom retained. These conditions are comparatively new, and their effect not yet fully felt. In time, we may expect the mind to adapt itself to these new demands. It will be highly receptive, extremely discriminative, but retentive to a comparatively slight degree. These very results were foretold by Plato, commenting on the value of the invention of letters:

> "But when they came to letters, This," said Theuth, "will make the Egyptians wiser and give them better memories; for this is the cure of forgetfulness and folly." Thanus replied: "O most ingenious Theuth, he who has the gift of invention is not always the best judge of the utility or inutility of his own inventions to the users of them. And in this instance a paternal love of your own child has led you to say what is not the fact; for this invention of yours will create forgetfulness in the learners' souls, because they will not use their memories; they will trust to the external written characters and not remember of themselves. You have found a specific not for memory, but for reminiscence, and you give your disciples only the pretense of wisdom; they will be hearers of many things and will have learned nothing; they will be tiresome, having the reputation of knowledge without its reality." (*Phædrus*, p. 274, Jowett.)

Cæsar, too, relates that the Druids would not commit their knowledge to writing because of the resulting neglect of the cultivation of the memory.

At this point the question arises: Granting that our system of education develops other mental powers than the memory, is it not well? What is to be gained by going back in any particular to the scholastic methods? Has not the new education emphatically justified itself by its results? This question we shall undoubtedly have to answer in the affirmative, if we accept the prevalent notion of the true end in education. If, as Francis Bacon taught, the end be the extending of man's power over nature, we are on the right track. Our education fits the times perfectly. The spirit of the times is such an active, enterprising, self-confident spirit, that our educators follow it with meekness. But education should form, not follow the times. The times call for "progress," and our system of education produces men progressive in full measure —progressive in scientific research, in literary criticism, in material development, in discovery, and invention. By a process of selection, social rather than natural or artificial, the discoverer survives. No man is a man who does not discover something, be it a new star or an old manuscript. To this life of discovery, the new education is perfectly adapted. It trains the observing powers from the beginning and the discriminative powers to the end. One of our prominent educators, in a recent article on university ideals, exposes in a brilliant way the superficiality of the common charges of utilitarianism against our schools and universities, and shows the solid advance made by our higher institutions in promoting humanitarian studies of the highest dignity. Yet in closing he defines the university ideal as "the organization and advancement of learning." But, for the sake of this advancement of learning, is there not too great individual sacrifice? Every student bends all his powers to contribute something new to the total of human knowledge. He must confine his work. He will cut a deep furrow, hence he must cut a narrow one. He is a specialist, but by no means a scholar. Had he not been destined to *produce* something, which when produced is too often nothing but a controversial book or a new and untrue theory, he might have been given a wider intellectual horizon, and enjoyed more of the world's accumulated profits. This conception of the university ideal as the advancement of learning fairly represents the now almost universal notion of the true end in education. It conceives of this end as a kind of effectiveness. This conception is faulty, not because it is not good, but because it is not complete. It omits worth for its own sake, character, attractiveness, happiness. When Aristotle taught that the highest happiness is found in intellectual activity, he did not mean an activity directed merely to a kind of modern "getting there," but a more self-conscious exercise of the higher powers, whose end should be found in self-activity and self-development.

It is customary for writers on education, in defending our schools from the charge of utilitarianism, to say much of "thought-expression" as a worthy and noble end. It is shown in the kindergarten in modeling; it is shown in the intermediate schools in composition and drawing; it is shown in the manual training schools in the products of artisans' tools. Thought-expression may possibly be called the high water mark in the educational theory of the present. The student must be taught either to do something or express something, and it must be something that will *tell* on the world of things or the world of men. This theory again is faulty, not in what it presents, but in what it omits. We forget that even when the pupil has been taught to do something good, to make, to say, to write something good, the teacher's duty toward him is not complete. All this is *effectiveness*. There are other qualities to be considered, such as attractiveness and happiness, especially that happiness which comes, not from activity, but from receptivity. The pupil may yet be taught to enjoy something, to see or to hear something, which shall be appreciated and remembered, but which shall not necessarily be used or imitated—for instance, a sonata, a landscape, a classical writing. Those who have by nature a taste for these things are allowed, perhaps encouraged, to retain it. Those who have a taste for cheap novels and cheap amusements do not have this taste corrected. Our present plan does not include, except in indirect ways, the education of the moral and intellectual tastes.

The new education is essentially the education of the critic. At every step the critical rather than the conservative powers are developed. Our want of respect for that which is old and past is equaled only by our forgetfulness of it. We have unlimited confidence in the possible improvement of whatever is old, our ignorance of it being too often the cause. We are competent to pass an easy criticism upon all old methods, whether in education or manufactures, upon existing social, political, and religious institutions, upon classical and sacred writings. As for purely literary criticism, though only negative work, it is already an overcrowded profession. If, in social science at least, and, as we may believe, in other branches of knowledge, the past is the balance wheel of the present, an educational system which does not encourage historical studies is dangerously deficient. Our system indirectly discourages these studies, both by its cultivation of the critical powers and by its failure to cultivate the memory. Of specialists in historical fields there is no lack. What is referred to is the general absence of interest in these subjects, and ignorance of them in our public schools and colleges. In this connection a quotation from Coleridge, though extreme, is too apt to be omitted. "Instead of storing the memory," he says, "during the period when the memory is the predominant faculty, with facts for the after exercise of the judgment, and instead of awakening by the noblest models the fond and unmixed love and admiration which is the natural and graceful temper of early youth, these nurslings of improved pedagogy are taught to dispute and decide; to suspect all but their own and their lecturer's wisdom; and to hold nothing sacred from their contempt, but their own contemptible arrogance—boy-graduates in all the technicals, and in all the dirty passions and impudence of anonymous criticism." "Prodigies with a vengeance have I known thus produced—prodigies of self-conceit, shallowness, arrogance, and infidelity!"

Our educational system being perfectly adapted to the popular conception of the end education should have in view, it was necessary to dwell thus at length on some defects in this conception. Since the individual is not a contrivance for the advancement of science, but a rational being and an end in himself; since attractiveness and happiness, as well as effectiveness, are to be considered in educational aims; and since our moral and social safety demands that our critical tendencies be tempered by a better knowledge and appreciation of the past, the question is: In what respect do our present methods need supplementing to adapt them to this higher conception? Shall we return to the Jesuit methods of the last century? Surely, since that time, we have advanced as much in methods of education as in those of spinning and weaving.

But we may learn something from their schools. What kind of men did they produce? They had little knowledge of physical science. They had little originality, curiosity, or inventiveness. Genius was not encouraged. Each graduate was not worked in his special line for all he was worth, but each was made as complete in himself as possible. He had a broad and what would now be called a superficial scholarship. He knew what had been done and said in the world, and he knew it without recourse to reference books. He cared less to produce something new than not to be found ignorant of what was old. He was a polished, self-confident man of the world. What methods of these schoolmasters may we unite with our own to give some of the scholastic breadth without sacrificing the modern depth? Is such a result *a priori* impossible? When we think of the enormous mental waste in learning again what we have forgotten, we may readily believe that the result is not impossible could we but find some way of practicing greater mental economy. If, in a word, we had good memories, we might be specialists and still be scholars. This is precisely the point where our system is weak and precisely the respect in which we need to learn of the Jesuit masters. By the application of correct pedagogical principles, it is possible, without sacrificing other necessary powers, to train the memory to an extent not at present realized. It is possible in this way to enable the student to practice mental economy that may give him a more extensive knowledge and culture though no less intensive in special directions.

Professor William James, in his recent work on psychology, says of memory: "No one probably was ever effective on a voluminous scale without a high degree of this physiological retentiveness. In the practical as in the theoretic life, the man whose acquisitions *stick* is the man who is always achieving and advancing, whilst his neighbors, spending most of their time in relearning what they once knew and have forgotten, simply hold their own. A Charlemagne, a Luther, a Leibniz, a Walter Scott, any example, in short, of your quarto or folio editions of mankind, must needs have amazing retentiveness of the purely physiological sort. Men without this retentiveness may excel in the *quality* of their work at this point or at that, but will never do such mighty sums of it, or be influential contemporaneously on such a scale." If it is true that for broad effectiveness a good memory is necessary, it is more obviously true that it is necessary for that attractiveness and culture which come from a widely extended and ready knowledge of the present and past. We hear so much of the mental "drawing out" process, which by a curious error has been made the original meaning of "education," that it has become tiresome, and we long to try the results of less "education" and more *information.* It is thought to be better for a pupil to find out a fact for himself than to be told it. If so, the reason must be that thus he will remember it better or understand it better. But the first reason is merely a concession to our poor memories, and as for the second, it is no doubt true that we should understand our clothes, furniture, and houses better if we made them ourselves. Rousseau's Emile, who is to find out everything for himself and be told nothing, would fare about as well in our intellectual world as a *Robinson Crusoe* in our commercial world.

It is true that rote-learning and paragraph recitations, unless they are merely for strengthening memory-power, are vicious; but there are two ways of escape. One is the modern objective method; the other is the Greek subjective method. One is the synthetic method of the object lesson; the other is the analytic method of discussion and reflection. The Greek scholars, your Plato and Zeno, did not get their education by object lessons, by recording temperatures and testing strength of material; and had they been put through such a course of training, it is probable that the world would have been without a Plato and Zeno. Their intellectual growth was too rapid for such constructive work in their youth. Like plants in richly manured soil, they absorbed the ready-made material of the past. The devotee of the objective method may be compared to a plant, which, refusing such material, will take only the original inorganic matter.

Quintilian says: "Turn to account the child's first years, especially as the elements of learning demand only memory, and the memory of children is very tenacious." Instead thereof, the child, according to our most approved method, is detained for hours or days while he is impressed with the fact that not only do three hens and two hens make five hens, but also three tops and two tops make five tops, and three boys and two boys make five boys. He is tormented with the various properties of the sphere and the cube, in which perhaps he hasn't the slightest interest. It is carefully explained to him that this is the picture of a cube, and this is the word cube, and this is the real cube; and it is thought that because the young pupil cannot yet express these distinctions, all these tedious explanations are necessary. Then he is taught reading by the "synthetic method," and the burden is put upon him of partly *making* his native tongue as he goes along.

It is not for a moment to be denied that the keen discrimination and the quick perception encouraged by the objective method are of high value; this is the point of excellence in the new education. Our mistake is in supposing that this half of education is the whole of it. That something is lacking is shown by cases of which the following is a too common example: A teacher of history in one of the prominent high schools of the country was asked by the writer whether she thought that the scholars in her history classes remembered any considerable part of the history studied, so that if suddenly called upon six months after the last examination, they could tell anything about it. The answer was, No. She was then asked whether she thought that, although forgotten, the matter had become a useful or productive part of their mental fiber. Again the same answer. It is from a kind of despair over this cramming and forgetting process, that the objective method has been so much encouraged. It corrects the evil, but in a too costly way, by virtually relinquishing the humanitarian studies outright, and substituting those for which the new method is adapted, namely, the material sciences. If from the beginning the retentive powers had been cultivated with the perceptive ones, there would have resulted a mental symmetry, making possible a wider range of studies ending in broader culture.

The aim of this article is to make a plea for memory-training, not to point out its methods. The methods, however, are not so intricate as are commonly supposed. When once it is recognized that the training of memory is worth some time and attention *for its own sake*, the problem of method may be soon solved. Hitherto when any attention at all has been given to memory-training, it has been indirectly, in connection with other work. Curiously enough, in our school system some of the most important matters have received only such incidental attention. Among these, besides memory, may be mentioned morals, music, and gymnastics. Why these should have been made subordinate to reading, writing, and arithmetic, it is difficult for one not committed to the system to say. Memory, then, if given some time and trouble for its own sake, responds to cultivation perhaps more readily than any other mental power. The economy of such a plan is as evident as that of mending the leaks in a vessel before beginning to fill it with water. At a certain time in the life of the child, beginning at the age when, under our present system, he is cutting colored paper and modeling clay turkeys in the kindergarten, the memory is so easily and naturally trained that its cultivation becomes a positive pleasure. In the few years following this time, fruitful results are still more easily obtained. During these years the memory is to be formed rather than filled. Perhaps no one has indicated so clearly some of the best methods of doing this as Charles G. Leland in his work on *Practical Education*. *Absolute thoroughness* in a certain limited, definite amount of memory-work is the thing of prime importance.

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VII

THE RECONSTRUCTION OF THE FRENCH UNIVERSITIES

The most important educational question of the year in France has been the plan for the reconstruction of the universities that emanated from the Government.

Our ancient universities disappeared in the Revolution of 1789. They gave place to the single University of France, which is made up of all public educational institutions, whether primary, secondary, or superior, established throughout the country. By a strange contradiction France, despite her traditions (for in the Middle Ages she was truly the mother and model of universities, or at least of all those that did not imitate the one established at Bologna), is to-day the only country without universities. And there seems but little hope that she will soon have them, if we may judge from the opposition manifested in the Senate to the Government's proposals. Must we then be satisfied to remain *in statu quo*, striking from our higher education the noble word "university," having scorned it for a hundred years? Or shall we reconstruct under new and appropriate forms what was demolished by the Revolution and the First Empire, thus remedying the evil of a century's standing, and completing and perfecting the development of our higher schools, undertaken by the Third Republic, by restoring to at least a few of them the title of university? This is the question which last March aroused an animated discussion in the Senate, and which is still pending. That the full bearing of this question upon France may be understood by foreigners, I must outline the present state of affairs.

Higher education in France is now conducted by the several faculties of law, medicine, science, and letters, established in different cities. France is divided, from an educational standpoint, into sixteen academies; each academy consisting of an administrative district governed by a rector under the authority of the Minister of Public Instruction. Each of these academies (with the exception of that of Chambéry, which is small, including but two departments, and having no rector) comprises a certain number of institutions of higher education with four, three, or sometimes only two, faculties. The academies of Paris, Lyons, Bordeaux, Montpellier, Toulouse, Lille, and Nancy alone have the complete group of four faculties. Five academies—those of Caen, Dijon, Grenoble, Poitiers, and Rennes have but three—those of law, science, and letters. The missing faculty of medicine is represented in these academies by a preparatory school where medical students begin the professional course, which must be continued and finished under a faculty of medicine elsewhere. The two academies of Besançon and Clermont have but two faculties, those of science and letters, while the academy of Aix is peculiarly constituted in that the three faculties of which it is composed are not established in the same city. The faculties of law and letters are in Aix, that of science at Marseilles. In all other instances, the faculties, whatever number they may be, are situated in the same city, which is also the seat of the academy and the place of residence of the rector.

The organs of higher education in France are 15 faculties of science, the same number of faculties of letters, 13 of law, and 7 of medicine.[1] In the different academies there are 900 members of the teaching staff, 600 of whom occupy professorial chairs, the others giving instruction in supplementary courses, this being the name given to the conferences held by the junior professors and tutors to supplement the professorial lectures. Almost half of these chairs, courses, and conferences are the work of the government of the republic, which in twenty years has tripled the budget for the faculties. The budget in 1871 was but 4,300,000 francs; in 1892 it is more than 12,500,000.

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[1] To these should be added two faculties of Protestant theology established at Paris and Montauban. All faculties of Catholic theology were suppressed in 1885.

Another remarkable proof of the progress made during the last few years by our system of higher instruction is the great increase in the number of students. The attendance at all the faculties in 1869 was but 9000; in 1892 it had risen to more than 20,000. This total resolves itself, using round numbers, into 8000 law students, 8000 students of medicine and pharmacy, 3000 students of letters, and 2000 students of science.[2] From these statements it can clearly be seen that our higher education is organized both carefully and successfully, and although we possess no universities in name, in reality we have all that the word stands for in other lands.

But this progress is not only indicated by the growth of isolated and individual faculties. There are a large number of chairs, of professors and students, and of libraries and laboratories which are each day more thoroughly and scientifically equipped. Since 1885 another reform has been introduced; an effort has been made to unite the different faculties comprising each academy. A general council of the faculties has been formed in each university town modeled after the *congregatio generalis* of the ancient universities, in which the common interests of the corporation as a whole are discussed. These general councils are composed of the president—the rector of the academy—the dean of each faculty, and a certain number of professors elected by their colleagues, two from each faculty. The council meets frequently, at least once a month, examines and approves all programmes of lectures, audits all bills, verifies the expenditures and receipts of each faculty, gives suggestions to the deans, maintains the standard of scholarship, establishes new courses, etc. In a word the general council acts as guardian to each faculty, and is at the same time the connecting link between them, however they may be associated or grouped. This unity, of which the general council is but a symbol, has manifested itself in many ways. I shall give but two instances. The first is, the establishment of students' societies; that in Paris already numbers several thousand young men, enrolled in all faculties. This society has a clubhouse, a revenue of its own, and distinctive colors. Its members assemble in the same lecture-, recreation-, and conversation-rooms, inculcating by this life in common the practice and duties of social brotherhood, and at such public ceremonials as the recent funeral of Renan, expressing the sentiments that animate the students, proving that they are even now a social power. Secondly, I may cite the organization of *Enseignements Mixtes*, which students of different faculties are invited to attend, and whose aim is to inspire them with a desire for a wider culture than can be gained by an exclusive professional training. "I saw at Lyons," said M. Bourgeois in the Senate, "what I shall call *des enseignements de liaison*." A course of legal medicine given under the direction of the faculties of law and medicine—a course of physical geography, and one of physiological psychology, the last given by the professors of philosophy (faculty of letters) and of physiology (faculty of science), and a course on the general history of science and its methods, under the direction of the three faculties of medicine, letters, and science, and given by a professor in the faculty of letters." This progress is the ground on which the adversaries of the plan for the reconstruction of the universities base their opposition. "What more do you desire," they asked the Government; "you have given us the essentials of university life, what does the merely nominal and decorative title of university matter to us?" To this the Government replied by laying great stress upon the important innovations contained in its proposals, some of which by their supposed consequences decided the fate of the law, which now seems indefinitely postponed. One of the most important of these innovations —the true *raison d'être* of the law presented to the Senate— was the conditions under which a group of faculties, established in the same city, could be constituted a university. The Government declared the title could only be conferred on complete groups of faculties, or those consisting of the four faculties of law, medicine, science, and letters. The cities of Paris, Lyons, Bordeaux, Montpellier, Toulouse, Lille, and Nancy alone fulfilled these requirements, and thus these academies would be the leaders of the new universities. Other academies were to keep their faculties, and their existing rights, but not possessing the four requisite faculties they could only serve as feeders to the universities. It is easy to understand why the Government thus limited the number of universities. If they were to be really strong and effective, they must be few in number. To multiply them—to constitute all schools of higher instruction universities—would be to weaken them from the start and, by the scattering of resources, to relinquish the desired aim and ideal of the Government: the establishment of powerful universities, which by the strength and brilliancy of their teaching would keep the large body of students in the provinces who are now attracted to Paris. It should not be forgotten that of the 20,000 students attending the courses of the different faculties in France, 10,000 are enrolled under the Paris faculties. If it were possible, by the restoration of a few provincial universities amply equipped, to do away with this plethora of students from which Paris is suffering, who will not agree that this decentralization of instruction would be in the interest of both students and science?

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[2] It should be remembered that besides faculties of law that train members of the Bar, and faculties of medicine that prepare physicians, there are in France many technical schools of higher education. Such are *L'École Polytechnique* where civil engineers and artillery officers study, and *L'École Normale Supérieure*, where the future teachers of secondary schools are trained.

The intentions of the Government were thus of the best. But unfortunately, by granting privileges and favors to seven groups of faculties, the others were antagonized. Cities like Poitiers, Rennes, and Dijon, which from their geographical position and scholastic traditions are really important from an educational standpoint, and which by the advice of the Government have made great financial sacrifices for the reconstruction and equipping of the faculties, were naturally irritated at the law, which lessened their influence and dignity, and threatened to keep them in the background for the future. Their representatives in the Senate could easily show that should the Government proposals be accepted there would soon be two divisions of higher instruction—the courses given at the universities, and those offered by isolated faculties, where professors would be placed in a lower grade, and by the mere force of circumstances, through competition with the real universities, the second order of faculties would gradually decline, and finally disappear. There is little doubt that these local interests, which would so easily be confounded with those of general import, were the true cause of the opposition that the proposals of the Government met with in the Senate, and this in spite of the eloquence of the present Minister of Public Instruction, M. Bourgeois, and of his predecessors, MM. Bardoux and Goblet. The proof of this is found in the declaration, by the opponents of the law, that they would withdraw all opposition if the Government would strike out the restrictive clauses, and institute as universities the fifteen existing groups of faculties. The university idea was in its turn vigorously attacked by the Minister of Foreign Affairs, himself an eminent professor, M. Challamel-Lacour. In a powerful address he attempted to prove that the reconstruction of universities would be contrary to the spirit of the republic and of modern France; that it would be but a clumsy imitation of foreign educational institutions; a dangerous revival of the corporations of the *Ancien Régime*, and that the simple unity of our grand national university would be threatened—a dangerous precedent to establish in a country of such centralization as France.

But in spite of these protests the university idea was not overthrown by the discussion in the Senate on the 10th, 11th, 14th, and 15th of March, 1892. The particular form, and the limitations in the number of universities, and the choice of favored cities aroused the chief opposition. At the close of the debate, the majority of the Senate, including those opposed to the law, declared themselves in favor of voting for the constitution of fifteen universities, corresponding to the fifteen academies. But the promoters of the plan, rather than have their hand forced by the erection of such a large number of institutions, refused to establish a single university.

I fear that to American readers this discussion, which has so stirred French scholars, will seem a mere play upon words. But perhaps I can, in a few words, remove this impression. It is a good rule never to ridicule words; they rule the world. A case in point is the Swiss student at the Sorbonne in Paris, who, when asked why he came to Paris instead of going to Lyons, replied "Lyons has no university." Yet Lyons boasts of its four admirably equipped faculties, 110 professors, and 1700 students. But as it lacks the formal title of university, it will remain unknown to foreigners who confuse the meaning of the words *Enseignement Supérieur* and *Université*. I do not hesitate to declare that in bestowing a title whose prestige is purely secular, France will add to the far-reaching effect of her higher schools, and will enlarge their patronage, especially in foreign lands. But this will not be the only real benefit gained by the establishment of universities. I shall not refer to the stimulus gained by the gratified pride of professors, students, and citizens, who, elated at the bestowal of such a title upon the academy resident in their city, would be moved to fresh effort in its behalf. There are other results to be looked for. Only single faculties are now regarded as corporations, and they only have the right to receive gifts and legacies. If they become universities, they also become corporations, although still under the direction of the state, which appoints their professors, supplements their revenues, and guides their policy by its representative, the rector. The university will gain, by the association of the members of its faculties, a greater degree of independence and a larger share of public attention. Citizens will become more interested in its success and its future, and without counting upon such generous support as is found in America, where new universities have been founded by the generosity of single individuals, a certain number of benefactors would surely be found who, by their liberality, would sustain and enrich universities that were prosperous and flourishing, thanks to the action of the state. For, although few are tempted to aid single and distinct faculties, consisting of but a few professors and students, the same assistance would not be refused to strongly organized ones, composed of hundreds of professors, and several thousand students.

But apart from these considerations, I believe the question should be discussed as relative to the proper organization of education itself—whether the faculties should remain separate, or grouped in one whole. This question rests on the still greater one of the true aim of higher education. Should its object be a mere professional training? should we be content to graduate lawyers, doctors, and scientific and literary men? or should we aim above the mere preparation for any special profession, and strive by a general culture to form minds open to all ideas, adorned with all knowledge; not universal geniuses—that species has disappeared, if it ever existed—but well-rounded intellects, which, if they have mastered one chosen science, have also dipped into others? In other words, should a school of higher instruction be nothing but a school of law or medicine, or should it be the center of intellectual development, influencing public sentiment, the soul of the nation?

Not a few impartial advocates were found to uphold both these views in the debate before the Senate. A few quotations will aid the reader in understanding their opposing opinions. On one side the Minister of Public Instruction says: "Higher education, as understood by us, is the source of all the broad culture of the nation. In practice, each professor in a faculty has his professional work. The state expects no more of him. The university professor, as we picture him, is a part of an organized whole, and feels that he has a higher mission. He realizes that his duty is not merely professional, but a social charge given to him by the whole country; that a greater dignity has been conferred upon him by his country, which strengthens him to fulfill its mandates." A little later the minister added: "We are a mint in which the national will is stamped with a definite mark, but the unity of our national consciences and national characters must be preserved. In a monarchical state, such as was France before 1789, all learning and culture was confined to the Church. In such a state as our own, on the contrary, all initiative is in the hands of the delegates of the sovereign people, and knowledge itself is distributed through this immense mass. How can it gain cohesion and unity? Nothing but science can create a common meeting ground in a country where political and social liberty rules. But science must have instruments, and the universities will be the instruments."

This is truly the expression of enthusiasm and of scientific faith. But listen to the reply of "common sense," the intelligent criticism offered by the opponents of the law. M. de Rozière, a professor at the *Ecole des Chartes*, one of those technical schools that complete our scheme of higher education, asks: "Have you taken into account, sir, the small number of students in our schools of higher instruction? Are there more than 1200 or 1500 in the whole of France? They are a favored few, who, not urged by any pressing necessity, stay for seven, eight, or ten years at some one institution of higher education, and finally retire with one of the degrees. But do you suppose their companions, who number thousands, have an opportunity of profiting by the resources you place at their disposition?"

From this discussion we may unravel the truth. The contradiction is but fancied. Both speakers agree *au fond*, although one lays emphasis upon the general culture of the mind, and the other advocates the cause of a professional training. Each concedes that higher education has a twofold mission: first, to train by an appropriate technical course professional specialists; second, by the use of general scientific method to create *les grands esprits* or at least to develop liberal culture. But while M. Bourgeois wishes to centralize the faculties for the accomplishment of the last-named purpose, M. de Rozière is entirely occupied with the practical side of the question. He thinks of those who are forced to prepare rapidly to fill a specific position with ability and credit. And for these reasons the first pleads for the universities and the second is satisfied with faculties. Is it not true that in spite of apparent contradictions these two conceptions could be united, and are in fact the complement of each other?

No school can be organized to produce such men as Renan and Pasteur. These men would have found their vocations had they been educated in a seminary, a faculty, or a university. But we need not fear that, given the rigid examinations, and the personal desire for success in life, professional instruction will ever be neglected by either professor or student. So that I should not hesitate to vote for the reconstruction of the universities, were it proved, as their partisans assert, that this reconstruction is the way to broaden the channels of higher education, to assure its powers, and to make of it an instrument not only of a few professional apprenticeships, but of the general education of the nation.

GABRIEL COMPAYRÉ

RECTEUR D'ACADÉMIE,
POITIERS, FRANCE

VIII

EDUCATION IN FOREIGN PERIODICALS

Herbert Spencer's Chapter on Moral Education

PROFESSOR S. S. LAURIE, AS REPORTED IN THE LONDON "EDUCATIONAL TIMES"

"I heartily concur with Mr. Spencer, both in the beginning and the conclusion of his chapter on 'Moral Education.' His first paragraph concludes with this utterance: 'The subject which involves all other subjects, and therefore the subject in which education should culminate, is the Theory and Practice of Education.' We cannot, of course, teach boys and girls at school how to discharge their duties as parents: at the school age, such instructions could have no link of association with the knowledge and experience of the boy and girl, and would, therefore, be wholly futile. We teach children these, their future duties when they grow to be men and women, by being ourselves an example to them, which they will remember and imitate; nothing in education is so potent as tradition early received. But when Spencer suggests that the education of young men and women should culminate in the study of education—that is to say, of moral education—I think he gives utterance to a novel idea, which is not to be set hastily aside because of its novelty. Perhaps it will one day be accepted as a truism—at least as regards young women. I remember, many years ago, being much impressed, but, of course, not surprised, when I beheld young ladies hurrying in considerable numbers to University lectures in Logic, Latin, Mathematics, and Physiology, while the subject which most nearly concerned the future life of more than ninety per cent. of them, viz., Education, was taken only by the few who meant to be school-teachers. It will not always be so. Mothers of the wealthier classes will tell us that they have no time for the training of their children; the demands of society are too exacting to admit of it. The day will come, if the race is to make progress, when it will be the other way about, and 'society' will have to content itself with taking a second place, while the duties of the nursery and the parlor will make good their prior claim. If the mother, though never the sole, yet always (theoretically, at least) the chief educator, is unfit for these duties, as is too commonly the case, it is just as well that she should delegate them, for, as Spencer truly says, 'The defects of children mirror the defects of their parents' —a remark to be extended, I need scarcely say, from the parent to the teacher. . . . .

"Note the 'proximate end' of moral education, as defined by Spencer, viz.: 'to produce a citizen who is well conducted, and is also able to make his way in the world,' that is to say, 'acquire the funds requisite for bringing up a family.' This 'proximate end' he elsewhere identifies with the 'practical ideal.' We at once quarrel with this conception of the moral or ethical end. If Mr. Spencer simply means that, try as we may, we ourselves shall never be able to lead ideal lives or train up others to lead them, he utters a commonplace which is all too true; but this is not what he means, as we may see from the rest of his argument. Although it may be that we must often enough be content with the attainment of a 'proximate end,' in the sense of an approximation to an ideal end, the approximation is not our end or aim. The proximate end as conceived by Mr. Spencer has its value, but as an educational end it is contemptible, and would take the very heart out of any teacher worth his salt. There is such a conception as that of the ideal man: that is to say, the man to whom the great ethical ideas of justice, benevolence, integrity, purity, and so forth, are a sacred possession, and who strives daily to make them the guide of his conduct, though they may often lead him to suffering, nay, sometimes to death. No man succeeds perfectly; but, that each may be even such as he is, it is necessary that he strive after something higher than his actual attainment. In the ideas resides the imperative moral law, and it is this the true man would fain, by God's help, fulfill. The fulfillment of the law in the ideas is the spiritual life—the true life of a rational spirit; all else is life inadequate and imperfect. This true life is, for each, simply the completion of himself as man. All created things tend, unconsciously or consciously, through the forces within them, to their own fulfillment or completion, while the self-conscious man *purposely* endeavors to realize that fulfillment in himself, if he is to be truly man. This, I submit, is the true doctrine; and it is to this we have to educate children and youths. It is also, substantially at least, the doctrine of Plato, Aristotle, and the New Testament. . . . .

"Spencer has already, I repeat, got his aim or end in the sphere of moral education, and what he now proceeds to consider are the *methods* whereby we may attain that aim or end—how we are to train children to be as good as their neighbors, and prevent their being any better, lest 'evil consequences' should follow. But he is, very naturally—indeed, necessarily, when he begins to think of method—led aside for a moment to consider the final standard or criterion of all morality whatsoever. He has already said, remember, that our proximate end, as he calls it, is to produce a well conducted citizen, who 'can make his living,' etc. There is an ideal greater and higher than this, however, he admits, but he sets it aside as if it were the dream of enthusiasts—something we may as well know, that our conduct generally and our teaching generally may tend that way, *so far as it is quite safe.* There might, he grants, flow 'evil consequences' even from merely keeping ideals in view; there is some danger in this, but he trusts to human wickedness and weakness to obviate these evils. That is to say, the evil in men may be trusted to obviate the evils arising from the pursuit of the ideal good—a singular position! There is manifestly something hopelessly mixed here, to say the least. The evil in man is to be relied on to keep him safe from evil—a remarkable assertion. We wonder what the author can mean by 'evil,' and in what sense he uses the word.

"And he must sympathize with the wonder of his reader, for he proceeds to consider how the (dangerous) true and absolute ideal in life and conduct is ascertained. By what mark shall I know it when I see it? What is its criterion? Important this, because it may not only make the whole argument logical and coherent, but also, perhaps, suggest a method of procedure in educating the young. The criterion or standard he seeks is thus propounded: *that* conduct is right and good 'whose total consequences are beneficial'; and by the word beneficial he means 'resulting in happiness.' This is the way (we are told) we find the true—the moral ideal.

"But as he has already said that we must not make the ideal our aim in educating, but that our aim should rather be the adapting of the young to the time and circumstances in which they live—a training of them to a kind of average morality which sets aside the ideal and perfection as idle dreams—the standard of the said ideal which he now exhibits to us lands him in endless contradictions. For if the ideal is that whose total consequences are most pleasurable and beneficial, then, surely, we ought *always* ourselves to aim at the 'most pleasurable and beneficial,' in other words, the true ideal, and train the young to do so; for if we do not aim at it, we shall be aiming at something which is *not* pleasant and beneficial, or, at best, only in a minor and subordinate degree pleasant and beneficial. To do what is *most* pleasant and beneficial to you as a man, would, inasmuch as it is the true ideal, be unpleasant and unbeneficial! Has he not already said, 'Be not too good, lest you suffer in this unsatisfactory world'? And now he tells us that the goodest goodness is the pleasantest thing going. How, then, by pursuing this goodest goodness—this true and absolute ideal—can I suffer? Why should I content myself with hanging up ideal principles on the wall, and suspending them in my daily conduct? How, in short, can that which is 'pleasant and beneficial' be undesirable, according to Spencer's theory of morals? Not to aim at the 'ideal' is to aim at that which is *not* pleasant and beneficial, according to Mr. Spencer's own theory, or, at least, not *so* pleasant and beneficial as the ideal, by his own showing, is.

"This brings me to Mr. Spencer's method of moral education. As might be expected, his method is the method of consequences. Now we accept this. In our case, however, the consequences of misconduct are the inner pain of sentiment ignored, of a foregone ideal, of a broken law, of an outraged nature; and in the case of the young, the pain of the disapprobation of teachers and parents, as embodying for the young the ideal and the law. *Material* consequences may or may not follow—that is to say, the punishment of the *body* in various ways, direct and indirect, positive and negative. Whether they should ever follow is one of the debated questions.

"You will see that, even to train up children to be no better than they should be, and always to choose what yields the most pleasure, some method is wanting. They have to be taught wherein their true pleasure lies when they are men, although it may seem not to be their true pleasure when children, because of their immaturity of judgment. How are we to proceed. Doubtless, if we may make a reasonable inference from a statement in the beginning of the chapter, Spencer would say, along with all other educational moralists, 'By example.' But, outside example, some other mode of procedure is necessary. This mode of procedure is called a method. Now, it is manifest that if morality is identical with the most beneficial or pleasing consequences I must train to morality by painful consequences. The child-sum of pleasures must be rectified by the adult-sum.

"Mr. Spencer points out, I have just said, that the method is the method of consequences; but the consequences are—in the larger part of the argument, always material, not moral—with the boy, the pain of burning his finger or having to put right what he has put wrong; with the man, indigestion or the pain of being deprived of his salary or the injury to his prospects of salary. Thus, he says, the child and the youth attain to a 'knowledge of right and wrong by personal experience of good and bad consequences.'

"If I amuse myself by sticking a pin into my leg I feel pain, and I seek some other amusement in future. There is here a 'natural reaction'—that is to say, nature instantaneously punishes an infraction of nature's laws. Spencer's main proposition, then, as regards method of moral training, is, let the reaction of nature take place. Now, it is not morally wrong to stick a pin into my leg. It is a physical miscalculation. Mr. Spencer confounds moral and emotional with purely physical reactions. When a little boy, in his anger, smashes his mother's best china-bowl, the natural reaction is a feeling of great satisfaction. When he burns his catechism in the hope of so ending a painful series of daily lessons, the flames are less bright and joyous than those that blaze up in his own heart. This is the natural reaction. Then, again, when he climbs a tree, and falls and breaks a leg, the natural reaction of his being such a goose as to lose hold of one footing before he has secured the next, is manifest. He has broken a physical law, but not a moral law, and must take the physical consequences. If he has taken firm hold, and secures the object of his ambition—the thrush's nest—and sells the eggs for 6d. a piece, he now enjoys the natural reaction, as before he suffered from it. It is quite clear from these illustrations that 'natural reactions' are outside the *moral* sphere altogether, and that, if there be anything immoral in his act, it must arise in some other way. In what way? It arises from the fact that he has broken a moral law; and that moral law can only be the command of his parents and teachers. What, *then*, is the natural reaction? Spencer gets so muddled over his natural reactions that he begins, toward the end of this chapter, to see that he is somehow wrong, and says that the disapprobation of the parent or teacher is itself a 'natural reaction.' Here he is at last on the right scent. But what becomes of his original '*natural*' reaction? The natural reactions he has been talking of are the reactions of nature in the sense of physical laws. He would now include the parent's disapprobation under the same head, using the word 'natural' in the vulgar sense of what might be 'reasonably expected to follow.' I see my boy in the tree where he has been told not to go. Am I cunningly to shake it that it may cause him to fall and break his leg, and so facilitate the natural reaction? What natural reaction—the reaction of physical law or of moral law? Is this to be his punishment, a fall that breaks his leg and to which I have cunningly contributed? I think not. The parent who did it would soon be in the hands of the police.

"In fact, the much-lauded doctrine of natural reactions, in the sense of reactions of physical law, carries us a very little way indeed. At best it is a physical reaction to a breach of physical law. We are compelled from the first to consider *moral reactions* for moral offenses, and let the physical blunders correct themselves, after we have given due warning. . . . .

"I would impress the futility of the so-called method on you with a few additional remarks. It is evident enough that, following the rule of natural reactions without considering moral elements, we should constantly be led into blunders. When a boy breaks a wineglass through carelessness, we might say that he should be required to replace it; but 'nature' does not require this, and to insist on it would be unjust. If he is the son of poor parents, and makes great efforts to economize, with a view to replacing it, he does so because of his feeling of sympathy with his parents in their loss, and of vexation with *himself*, as having inadvertently caused a loss. The replacement, then, is a moral act pure and simple, and has nothing to do with nature's reactions. If, again, he has broken the glass *intentionally*, in order to pay his parents out for some imaginary injustice, there is no *natural* reaction of replacement, but quite the reverse. He would like to break two glasses. This is the natural reaction; and if I wish to correct the boy, I must first get him to *feel* what the good boy, who inadvertently broke the glass, felt, and, out of the strength of that feeling, condemn himself, and seek to make restitution. Bentham's recommendation is a sound one, because, among other advantages, it brings in reason and common-sense to control nature's reactions, which are generally irrational. A good thing it is that *we* have to determine punishments, and not nature; for nature is blind, and stupid, and often cruel. Spencer says that natural reactions are 'pure justice.' On the contrary, they very seldom are justice at all, if *men* do not guide and control them. Natural reactions are constantly too slight for the offense, more frequently too grave. Two boys are clambering over a high wall. They have no right to do so, but 'boys will be boys,' and one falls and breaks his leg; the other falls, and escapes with a slight bruise. Which of them has been *justly* treated by nature? Both boys will certainly be more careful in future, but the boy who broke his leg will, perhaps, be ever after afraid of high places. This, surely, is an unfortunate result. Courage is a virtue. By over-severity, nature has extinguished the growth of a possible virtue. An infant puts his finger in a candle-flame. Surely, the punishment of hours of pain is too severe. In truth, nature is a very hard taskmaster, and if we were to follow her example we should often be most unjust. . . . .

"I would, in conclusion, point out that Mr. Spencer's method is a method of merely negative training in morality, not a word is said about positive training. Negative training can repress the external exhibition of a vice, while the vice itself may be more deeply rooted than ever. I say there is no positive training to moral ideas, and to a habit of virtue; but with Spencer's moral theory how could there be? That theory is: Do so-and-so or you will suffer; you will get the minimum of pleasure and the maximum of pain, and the maximum of pain *is* vice. Accordingly you cannot train except negatively, if you are to work out this theory consistently. And negative training will produce only negative results."

IX

DISCUSSIONS

IS GREEK DEAD?

There are so many people who still think Greek a dead language that an account of my own reluctant conversion to the contrary opinion may, perhaps, be interesting.

I was brought up under Professors Moore and Anthon of Columbia College in the firm belief that modern Greek was a compound of a very little ancient Greek mixed up with parts of the languages of all the barbarians that had ever invaded Greece.

Their pronunciation also was all wrong because: (1) They pronounced by accent and not by quantity; (2) They gave the long sound of *e* to six separate vowels and diphthongs; (3) In a comedy of Aristophanes a dog is introduced whose bark is represented by the Greek letters Alpha Upsilon, ἀυ, ἀυ, ἀυ which our Greek teachers pronounced *ow*, *ow*, *ow*, and the modern Greeks *av*, *av*, *av*. As a dog's bark is always *ow*, *ow*, *ow* and never *av*, *av*, *av*, it was very clear that the modern Greeks were wrong.

A very learned man named Erasmus had, in the earlier part of the sixteenth century, discovered, or invented, or evolved from his inner consciousness, the proper pronunciation of Greek, which was accepted by almost all the teachers and learned men of the civilized world, and has ever since maintained its supremacy.

These doctrines I not only firmly believed, but taught for several years after leaving college, until a sudden desire seized me to know something of modern Greek, and I procured a teacher of that language. At the first lesson he produced a grammar printed entirely in Greek, and we proceeded to read it; but when I saw the Greek characters and the Greek words that I knew, I protested that I wished to study not ancient, but modern Greek. He assured me that they were the same, and as I read on, I was astonished to find that, as far as I could see, the languages *were* the same, except that the moderns used clumsy auxiliaries in place of the simple old Greek tenses. To complete my conversion my teacher brought me a number of an illustrated weekly paper published at Smyrna, and challenged me to find in it any word not given in my dictionary of ancient Greek. I tried it, and found that he was right, and, to my great astonishment, all my teachers had been wrong, as I had been myself in teaching the contrary. The proof, however, was so conclusive that there was nothing to be done except to surrender at discretion.

There remained the matter of pronunciation, which was very different from the Erasmian pronunciation that I had been taught and seemed far less sonorous. How could I give up the *poluphloisboio thalassees* for the *polyphleesvio thalassees* of the modern Greek? But it was also pointed out to me that *polyphleesvio* was much more like rushing water than *poluphloisboio*, and I was soon led to examine closely the objections to the modern Greek pronunciation.

In reply to the charge that the modern Greeks pronounced by accent rather than by quantity, it may be said that quantity can only be denoted by accent, unless one resorts to intoning or musical recitation. Moreover, these accents had been invented and applied by an old Greek grammarian who lived before Christ. Arcadius of Antioch, a grammarian who lived about 200 A. D., epitomized a work on prosody written by Herodian, who flourished at Rome under Marcus Aurelius (161–180 A. D.), in which Herodian distinctly states that Aristophanes of Byzantium, a grammarian who lived about 200 B. C., and who passed many years at Alexandria, invented the accents and breathings now used in Greek and employed them as "a mark of correctness of speech." The Greeks have used these accents and breathings for that purpose ever since, so that for more than two thousand years they have maintained the proper pronunciation of their speech by means of these marks, a fact utterly unparalleled in history, and which surely should authorize them to say how their own language is to be pronounced. Yet Erasmus actually persuaded almost all the learned men of Europe to adopt a pronunciation that he had invented, thus turning their backs upon a nation that had preserved so faithfully up to the time of his new departure (1528), the pronunciation of their fathers. From Europe our scholars took their cue, and for hundreds of years we have been using and teaching this fanciful pronunciation, utterly ignoring the undoubtedly correct pronunciation of the modern Greeks, and building up an artificial barrier between us and the millions who speak Greek.

Within the last forty years, however, there has been a change in some places. Many of the German scholars have seen the utter absurdity of this position, and have taken up, to a certain extent, the Greek pronunciation of Greek. Harvard College was the first in this country to advocate pronouncing Greek by accent, about thirty-five years ago. Yale has, I believe, followed suit, and now Columbia, under the auspices of Professor Merriam, has wheeled into line. Many, if not all, of these colleges, however, still fight against the Greek pronunciation of the vowels, and cannot forgive the moderns for pronouncing six different vowels and diphthongs with the monotonous sound of long *e*. This seems a serious difficulty, until one remembers that all those who use the English language do the same thing. In the words *receive*, *believe*, *leave*, *eve*, *plenitude*, and *any*, we are actually give the long sound of *e* to the six syllables *ei*, *ie*, *ea*, *e*, *i*, and *y*, and are thus just as outrageous as the modern Greeks. We must therefore either condemn ourselves or let this argument fall gently to the ground.

One of the most curious episodes in this whole story of Greek pronunciation is that in the year 1518 Erasmus wrote to his friend John Lascaris, a Greek, at Constantinople, begging him to send a native Greek who could teach the true pronunciation of Greek to the students of the new college at Louvain. This seems so incredible that I give the original letter in full.

Joanni Lascari Constantinopolitano Erasmus Roterodamus, S. D.

Vir omnibus ornamentis clarissime, Hieronymus Buslidius, homo doctus ac potens, et hujus regni decus incomparabile, in itinere Hispanico moriens, legavit multa millia ducatorum ad institutionem novi Collegii apud Lovanium, Academiam hac ætate cum primis florentem in quo publicitus et gratis tradantur tres linguæ, Hebraica, Græca, Latina, salario satis magnifico, circiter septuaginta ducatorum, quod tamen augeri possit pro ratione personæ. Hebræus jam adest, et item Latinus. Græcam professionem complures ambiunt. Verum meum consilium semper fuit ut ascisceretur Græcus natus, unde statim germanam Græci sermonis pronunciationem imbibant auditores. Ac meæ sententiæ subscribunt autores hujus negotii omnes, mihique mandarunt, ut suis verbis accerserem quem judicassem ad hoc negotii idoneum. Quare te rogo, vel pro solita tua erga nos humanitate, vel pro tua erga bonas literas favore, si quem nôsti, quem existimes et mihi et tibi futurum honori, cura ut quamprimum huc advolet. Dabitur viaticum, dabitur salarium, dabitur locus. Erit illi res cum viris integerrimis et humanissimis. Neque minus fidat his meis literis quam si centum diplomatis res esset transacta. Inter bonos et absque syngraphis bene agitur. Tu cura ut deligas idoneum, ego curabo ne hominem huc venisse pœniteat. Bene vale, doctissime clarissimeque vir.

LOVANII, postridie divi Marci, anno MDXVIII.[1]

Ten years after this letter was written (1528) Erasmus came to the conclusion that the Greeks did not know how to pronounce Greek correctly. He therefore published another pronunciation which he declared to be the correct one, and persuaded almost all the other learned men in Europe to follow him in this curious crusade. Erasmus thus succeeded wonderfully well in building up a barrier between Greek scholars in the West and the Greek nation itself.

Among the latest statements as to the kinship of ancient and modern Greek is that of Professor W. W. Goodwin, who was for one year (1882–83) director of the American School of Classical Studies at Athens. He says: "The great fact remains for the classical student that the cultivated Greeks of Athens now have a language in which all their books and all their better newspapers are written, which is used in the official documents of the government, in the lectures of the university, and in the speeches in the Senate, which is taught in all the Greek schools and which every educated person can speak; and this language differs less from the Greek of Xenophon, as regards the form of the words, than that differs from the Greek of Herodotus, and less than the English of to-day differs from the English of four or five centuries ago.

"It may be said with truth that Plato or Demosthenes, were he to return to Athens, could read the daily papers with little difficulty, except so far as he would be puzzled by modern ideas and new forms of thought. He could certainly learn to understand the forms and the constructions by an hour's tuition. If ancient Greek were taught in our schools and colleges with the modern pronunciation, it would be quite easy for any one of our better Greek scholars to understand the language of the educated people in Athens, and, after a little practice, to make himself understood by them."

JOHN MACMULLEN

NEW YORK

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[1] Erasmi Epist. 181 folio, Lond. 1642.

X

REVIEWS

The History of Modern Education: An Account of the Course of Educational Opinion and Practice from the Revival of Learning to the Present Decade.—By SAMUEL G. WILLIAMS, Ph. D., Professor of the Science and Art of Teaching in Cornell University. Syracuse, N. Y.: C. W. Bardeen, 1892, pp. 395. Price $1.50.

The history of education has been neglected so long that many intelligent persons are not aware that such a subject of study exists. Indeed it is found only in normal schools and a few universities; the former usually teach it very badly, and the latter almost invariably push it into a quiet corner where it will not attract too much attention. Then, too, there is the materially-minded person who wants to be assured, before he interests himself in the history of education, that a knowledge of it will secure him advancement or increase of salary. This is all very discouraging; yet the subject is gradually winning its way upon its intrinsic merits and by reason of its permanent interest, and far more serious attention is being paid to the history of education to-day than ever before. The schools of Greece and Rome have been reproduced, item by item; every minute detail in the organization of the early universities has been gone over; the Seven Liberal Arts have been traced to their origin; and the educational classics of the modern period have been carefully translated and edited. Most of this work has been done, however, in technical journals or learned monographs, and it is beyond the reach of the average reader. For the latter, text-books have been prepared in which the results of recent research are put together and a consecutive story of educational development told. Of these Professor Williams's book is the latest, and, for the American reader, the best. It is not, like Mr. Quick's remarkable book, a contribution to literature as well as to pedagogics, but it is an interesting, accurate, and wise history of the period that it covers.

One is struck with the excellent sense of proportion that pervades the work, as well as with the soundness of the author's judgments and his breadth of view. He is neither a partisan nor a sentimentalist. The capital sketch of Comenius—one of the best things in the book—and the very discriminating and philosophical analysis of Rousseau's *Émile*, may be cited as evidence of this. The young student will also derive no little help from Professor Williams's comments on the strength and the weakness of Herbert Spencer's essays on education. In fact, the author's long teaching experience has stood him in good stead, and he has made a teacher's book.

It need hardly be added that Professor Williams's *History* ought to displace all of the cheap compends now in use. It is also a more serviceable book, for this country at least, than the English translation of Compayré's *History of Pedagogy*. There is no question that this effort of Professor Williams "to construct a narrative which should be truthful and perspicuous without being unduly bulky," has been successful. He has amply sustained his own reputation and done the cause of education a substantial service.

N. M. B.

The Works of Joseph Payne.—Edited by his son, JOSEPH F. PAYNE, M. D., Fellow of Magdalen College, Oxford. London and New York: Longmans, Green & Co., 1883, 1892, vol. i, pp. 386, vol. ii, p. 313. Price $5.

This handsome edition of the educational writings and addresses of Joseph Payne is a worthy monument to his memory and must find a place in every educational library worthy of the name. In the first volume are gathered the lectures on the science and art of education, and an important series of supplementary papers and addresses. The second volume contains the lectures on the history of education and the account of the visit to German schools. A memoir by the late Mr. Quick and an admirable portrait of Payne are included in the first volume.

It is sixteen years since Mr. Payne died, and although great changes have taken place in that time, his writings are as stimulating and as helpful as ever, and only here and there do they seem out of date. The secret of this is to be found in the fact that he was both one of those rare theorizers who can teach, and one of those rare teachers who can theorize. Such a man's experience is doubly valuable; for, as Professor Paulsen tells his classes every year at Berlin, the theorizer is the only man who can have real experience, for he alone can interpret phenomena and see their inner connection. The so-called practical man, who will not or cannot theorize, goes through life with his eyes shut.

Joseph Payne loved the work of teaching and had a profound appreciation of its real significance. As he viewed teaching, it meant—to quote Mr. Quick—"an insight into the working of the pupil's mind, a power of calling its activities into play and of directing them to the needful exercise, a perception of results, and a knowledge how to render those results permanent." With this lofty ideal before him Mr. Payne saw clearly that teachers must be trained, and he stands in the front rank of those modern educationists who have insisted and are insisting, both by word and deed, that adequate provision be made for the professional education of teachers. The various papers and addresses brought together in these volumes will bear the test of careful reading and rereading.

N. M. B.

British Universities : Notes and Summaries contributed to the Welsh University Discussion by Members of the Senate of the University College of North Wales. —With a General Introduction by W. RHYS ROBERTS, M. A., Professor of Greek in the University College of North Wales, Bangor. Manchester, England : J. E. Cornish, 1892, pp. 89. Price 1s.

This modest little pamphlet contains in compact form a great deal of useful information for American readers. The writers of its several chapters were animated by a desire to bring together data as to the organization and administration of universities elsewhere, in order to throw light on the problem of organizing a university for Wales. What they have given us is a brief analysis of the constitution and regulations of the existing universities of Great Britain and Ireland. Professor Rhys Roberts contributes an introductory essay which runs briefly over the history of universities and then dwells at some length on university administration in Germany. The experience of the United States is also touched upon, and the author is wise enough to say that, "not more than twelve, and possibly only eight or nine, of the total number of American universities would, it is thought, be able to stand the application of a vigorous definition of the term" (p. 14). Even this estimate is decidedly liberal.

The chapter on Oxford is by Mr. H. R. Reichel and is a model of clearness and good arrangement. It is the best of all the descriptions of single institutions. Even the novice can thread his way here through the tangled maze of Hebdomadal Council, Congregation, and Convocation; "Smalls," "Moderations," and "Greats"; and the various requirements for degrees and for honors.

The other universities that are described include Cambridge, Durham, London, the Victoria University, Edinburgh, Glasgow, Aberdeen, St. Andrews, the University of Dublin, Queen's, and the Royal University of Ireland. The information given is in every case accurate and well chosen.

The very obvious success of a pamphlet of this kind suggests the usefulness of a similar treatment of the leading universities not only of Great Britain, but of the world.

N. M. B.

The Story of the German Iliad; A School Reader for the Sixth and Seventh Grades.—By MARY E. BURT. New York: Effingham, Maynard & Co., 1892, pp. 119.

Six Centuries of English Poetry, from Chaucer to Tennyson.—By JAMES BALDWIN, Ph. D. New York: Silver, Burdett & Co., 1892, pp. 308.

Selections for Memorizing for Primary, Intermediate, and High School Grades. —Compiled by L. C. FOSTER and SHERMAN WILLIAMS. Boston: Ginn & Co., 1892, pp. viii, 195.

Johnson's Life of Milton; with an Introduction and Notes. By K. DEIGHTON. London and New York: Macmillan & Co., 1892, pp. xxiv, 139.

There is still much difference of opinion among teachers as to whether literature should be studied in complete works or in selections. But a very few years ago, almost the only reading matter supplied for elementary pupils was contained in the graded school readers. These books have, since their invention, been filled with selections, good, bad, and indifferent, torn from their contexts, and thus deprived, in large measure, of their legitimate interest. The results of the continued study of books of this kind have not been satisfactory. They afford material for elocutionary drill, and that is about all. They do not enable the pupil to follow a sustained train of thought, only fragments of thought. They do not present complete works of literary art, and so do not lead to a due appreciation of that greatest of all arts.

A practical difficulty, however, has presented itself to those who have endeavored to prepare entire works for children's study in school. Many of the works which it is highly desirable that children should read, are much too long for study in graded schools. Such is the case with many of our longer poems, and with most of our classical fiction.

Two methods of meeting this difficulty have been suggested. One is to present only the most stirring or most worthy passages, the sense being carried on by brief statements in the editor's words of the substance of the intervening parts. The other is to omit all that is unnecessary to sustain the train of thought or the narrative, all digressions, disquisitions, and superfluous descriptions, and to say nothing (in the school editions) of the omissions. The first method is too often marred by the unskillfulness of the editor's work; the contrast between the precious stones and the links by which they are connected is too violent. The objection to the second method is that it has too much the appearance of mutilation. This, however, will affect only mature readers. Children do not know what has been left out. And, in fine, it may be said that, if, in order to foster the love of good literature, the excision of parts uninteresting or unprofitable to children is necessary, the cause abundantly justifies the means. Miss Burt has apparently used both methods in presenting this school edition of the "Nibelungen Lied," and has used them skillfully and with discretion. It is most extraordinary, but still such is the fact, that this is the first edition of the "German Iliad" prepared for school use. "The story of the 'Horned Siegfried,'" says Carlyle, "is a real child's-book and people's-book among the Germans." "The Nibelungen," he continues, "is welcomed as a precious national possession, recovered after six centuries of neglect, and takes undisputed place among the sacred books of German literature . . . and to look with natural eyes on that part of it which stands visibly above ground, and record his own experiences thereof, is what any reasonable mortal can do if he will take heed. It belongs to the English Teutons as well as to the Germans." To the American Teutons as well as to the English, it may be added; to those who spring from the Anglo-Saxon and Norman stock, as well as to those who have come direct from the Fatherland. In myth, not the stories of Heracles and Aphrodite, but of Siegfried and Brünnhilde, are the true patrimony of every American child. Here are the stories that take hold of every imagination; the stories that show the types of manliness and womanliness to be imitated, as well as those to be shunned and hated. No better reading book than this can be placed in a child's hand. To the adult, also, who has never learned the story of the German Iliad, and who gazes in ignorant awe on the noble operas of Richard Wagner, I can heartily commend this book.

Mr. Baldwin's *Six Centuries of English Poetry* is the first of a series of English classics prepared for school use. It is evidently intended to present a general view of English poetry from Tennyson to Chaucer, before the more minute study of particular poets or schools of poetry is presented. In carrying out this plan the author has wisely commenced with the poetry of our own day and worked backward to the poetry of the fourteenth century. In literature, certainly, the chronological order is not the pedagogical. The selections are all good, as far as they go. The notes, too, are commendable; I do not find in them anything to which exception can well be taken.

The *Selections for Memorizing* prepared by Superintendents Williams and Foster, is exactly what its name indicates. Selections are given suitable for primary grades, for intermediate grades, and for high school grades. One of the most valuable of school exercises is the memorizing of good prose and poetry. It is a good exercise, even if the matter memorized is not fully understood at the time. No mind, however fully developed, takes in at a glance the full meaning of poetry. "The light that never was on sea or land" infiltrates only very gradually the recesses of the brain. And so a poem learned in childhood, through the very slowness with which its significance is grasped, often becomes a perpetual benediction throughout life. The work of memorizing selections in schools is, however, too often marred by requiring children to learn by heart matter that is entirely unsuitable. This danger will be obviated by the use of this book, in which the selections have been carefully adapted to the various stages of progress.

Deighton's edition of Dr. Johnson's *Life of Milton* is an admirable piece of work for advanced students. Both in the Introduction and in the Notes, the peculiar excellences of Johnson's work are clearly brought out, while the young student is carefully guarded against imbibing the errors into which Johnson fell, not less through his political, than through his literary, prejudices.

W. H. M.

Studies in English Grammar: A Comprehensive Course for Grammar Schools, High Schools, and Academies; based upon Welsh's *Lessons in English Grammar.*—Edited by J. M. GREENWOOD, A. M., Superintendent of Schools, Kansas City, Mo. Boston: Silver, Burdett & Co., 1892, pp. 240.

The English Language and English Grammar.—By SAMUEL RAMSEY. New York: G. P. Putnam's Sons, 1892, pp. iv, 568.

Here are two grammars of very distinct types—the compendium for pupils and the more or less exhaustive treatise intended for the specialist and the general reader. So far as I can learn, Superintendent Greenwood has made his first essay in text-book-making in the preparation of this compendium, based on Welsh's *Lessons in English Grammar.* How far Mr. Welsh's book is responsible for the present volume I am unable to determine, as I must confess ignorance of what was once, I am told, a popular text-book; but it is truly amazing that a man of Mr. Greenwood's eminence as an educator should, as responsible editor, have permitted some of the things in the edition which bears his name, to issue from the press. The objection that will be generally urged against the book is that it contains hardly a trace of the inductive method. This objection, however, I do not regard as formidable, because the book is intended for pupils who should have passed the inductive stage. It is the frequent looseness of the language used, and the anomalies in arrangement that I feel constrained to criticise.

After a brief sketch of the history of the English language, Mr. Greenwood gives us the following definition of English Grammar: "English grammar is the science of the principles and usages of the English language." This definition is open to two objections, either of which is fatal: first, it is too wide, as it is comprehensive enough to include rhetoric and a considerable part of formal logic; second, it contains four terms which themselves require definition and have not been defined in the preceding part of the book, "science," "principles," "usages," and "language." As to what Mr. Greenwoood understands, however, by the "principles" of the English language, he does not leave us long in doubt. They "may be conveniently classed," he says, "as follows: 1. The elementary sounds and letters of the language. 2. The grouping of the words into classes. 3. The construction and analysis of sentences. 4. The rules that govern versification." The accepted meaning of the word *principle*, when used as a scientific term, is that given by Webster: "A fundamental truth, a comprehensive law or doctrine from which others are derived, or on which others are founded." How absurd, then, to speak of a sound, or a letter, or the analysis of sentences, or the rules that govern versification, as a *principle!* Perhaps Mr. Greenwood would reply that he does not use the word "principle" as it is defined by Webster. This, though a hazardous experiment, I suppose he has a perfect right to do. But if he does use the word out of its accepted scientific meaning, he should provide his own definition.

Upon this fourfold classification of "principles" Mr. Greenwood founds the division of English grammar into four parts: orthography, etymology, syntax, and prosody. It would seem, from his arrangement of these terms, that Mr. Greenwood means by etymology the grouping of words into classes. What, then, is the reader's astonishment to find that, though fully one-half of the book is devoted to the classification of words and a statement of their inflections, this subject is not once referred to as belonging to etymology? And, when he comes to a definition of the term on p. 169, he finds the following: "Etymology is that division of grammar which treats of the origin, variation, derivation, and properties of words." On p. 17 etymology is made to include the classification of words and that alone; on p. 169 classification is carefully excluded from the definition. Such carelessness in the use of terms in any book, but particularly in a school text-book, is simply monstrous. After this, no one will be surprised to learn that, though prosody is mentioned on p. 17 as one of the four divisions of grammar, its treatment is omitted altogether.

Carelessness in the use of scientific terms seems to pervade the language of the book. On p. 29 the author says: "Notwithstanding the great variety of structure they exhibit, all sentences fall under one of three classes. They are *simple*, *complex*, or *compound*." Under which one of these three classes do *all* sentences fall? Again, he speaks of the "modification of adverbs" the "modification of nouns," etc., when he manifestly means *inflection*. Modification has now a well-defined use as a grammatical term, and it is this sense in which Mr. Greenwood uses the word elsewhere in the book, particularly in the chapter on Analysis, and defines it in his glossary.

Many of the old "rules of syntax," some of which are ridiculous, some of which have no reference to syntax at all, are still preserved in this book, like fossils in a rock. What reason can there be for the rule: "In the use of irregular verbs the past tense should be distinguished from the past participle?" This is all very well as a caution, but it is in no sense a rule of syntax. Equally out of place is the rule: "Interjections are independent in construction." The distinguishing mark of an interjection as a part of speech is that it has no syntax. It is the recitation of such rules as these, every time a word is parsed, that makes the teaching of grammar the senseless routine into which it so frequently degenerates.

A diligent search has failed to discover any treatment of the "shall and will" difficulty; while the author's view of the subjunctive mode is certainly unique. He excludes it from his classification, because (1) there is no peculiar form for it, and (2) because there is no peculiar meaning for it. As to the form, the statement is only partially true; and even if it were wholly true the argument would not avail. He might as well exclude the objective case of nouns because it has no "peculiar form." The statement that the subjunctive mode has "no peculiar meaning" is altogether incorrect. The trouble is that Mr. Greenwood has failed to grasp the general notion involved in "mode." The subjunctive mode has a "peculiar meaning" in English, just as it has in Latin, and is freely used by classical writers and good speakers. The day for grammars that set up arbitrary standards of language, instead of recording the best usage, is past.

Very different in character is Mr. Ramsey's volume. Not intended for the schoolboy but for the general reader, not setting up arbitrary standards but seeking to set forth the best usage of the language, I must regard it as a most valuable addition to the literature of English grammar. The author pretends to no originality; but he has carefully collated the opinions of the highest authorities, ransacked classic English literature for illustrations, and cast the whole in a form at once entertaining and instructive. The book is divided into two parts—the English language and English grammar. Under the first head he treats of the sources of English, word-making, the alphabet, Grimm's law, and pronunciation and spelling. Under the second head he treats of the parts of speech, their properties, and their syntax.

The fullness with which Mr. Ramsey has treated every part of his subject may be imagined from the statement that he devotes thirteen pages to the subjunctive mode, and twenty-seven pages to the discussion of the "shall and will" problem. It may be safely said, indeed, that, while he is less technical and less scholarly than Mr. Morris, and less philosophic than Dr. Bain, he has produced a much more readable book than either. Though far from being as complete a *résumé* of the best English usage as is Mätzner's work in German, it is unquestionably the most complete yet produced in our own language. To teachers who have not had an opportunity to carry their grammatical studies beyond the regulation school text-book, and whose teaching of grammar is poor because their knowledge is limited, the book should be most profitable and most welcome.

W. H. M.

XI

EDITORIAL

At last, after much discreditable shuffling and harmful delay on the part of the Exposition authorities, it is announced, "semi-officially," that a separate Educational Building will be erected at Chicago. The munificent sum of $150,000—less than is spent every year on schools by almost any city in the country having 75,000 inhabitants—is to be diverted for this purpose from the millions appropriated to housing machinery, minerals, horned cattle, and hogs. Yet even for this little something—if it is really to be granted—it behooves us to be thankful, for it was only secured by the most strenuous representations that, unless education was cared for in some way, the school and college teachers of the country would denounce the Exposition from one end of the country to the other—this being the only sort of argument that seems to carry weight with the board of directors. The space to be provided is ridiculously small, but must be made the most of. By a concerted effort and generous co-operation it is possible to make an exhibit that will be creditable. If any State or city is in doubt as to the proper steps to be taken, the pamphlet issued by the Department of Public Instruction of the State of New Jersey should be sent for and used as a guide. It is admirable in every respect.

This exhibit at Chicago next year will afford an unusually favorable opportunity to compare the work done by the rural schools of the several States. The number of these schools and hence their importance in any adequate representation of the United States, greatly exceed those of the city schools; but it is to be feared that in the exhibit at Chicago the city schools will monopolize most of the space and completely overshadow the schools of the country districts. The reasons for this are obvious: namely, the greater facilities of the cities to prepare an exhibit, their greater unity and coherence in organization and control, and their larger experience in this sort of work. There is reason to believe, however, that several of the Western States will make a remarkable rural school exhibit. To accomplish this, much must be done by the State departments of public instruction by furnishing gratuitous supplies to the localities, thereby making it possible for a rural district with small means to participate. Furthermore, the instructions issued by the State officers to the rural schools should be full and explicit, in order to compensate in a measure for the advantage possessed by the carefully directed and supervised city schools.

That the exhibit of rural schools will show widely varying degrees of excellence is quite probable. To what factors or conditions should this great disparity, if it is found to exist, be attributed? Any remarkable superiority in the work of a city will be largely ascribed to the excellence of its supervision and teaching force, especially the latter. But to what will any particular excellence in the rural schools, where the teaching qualifications are quite uniform throughout the country, be ascribed? Here will be an opportunity for the State of Massachusetts to exhibit the efficiency of its system of district supervision, so called, in competition with the county supervision of most other States. The township system, as opposed to the school district system, will be enabled to prove its superiority by the work exhibited. The elected county superintendent, as in New York, will be matched against the appointed superintendent, as in New Jersey. Indeed, the exhibit at Chicago of the work of the rural schools of the country ought to lead to some very valuable and positive conclusions as to the best methods in their organization and management.

How to secure an honest and reliable school census is a problem that many States have yet to solve. In New Jersey the problem has always been an important one, owing to the peculiar method employed in that State for levying and distributing the State school tax. The school census is regularly taken in May of each year, and includes all persons between the ages of five and eighteen. The State school tax of $5.00 per capita is based thereon. It will be seen, therefore, that an increase or decrease of 20,000 in the entire census would make a difference of $100,000, in the amount of the annual school tax to be raised by the State. The entire State school tax, determined as above, is apportioned by law among the several counties, according to their assessed valuations, and is collected in the usual manner. A peculiar feature of the New Jersey school law, however, is that ninety per cent. of the entire tax raised in any county is required to be returned to that county, ten per cent. being left to the discretion of the State Board of Education to distribute among the poorer and more deserving counties of the State. Again, every school district containing forty-five children of school age is entitled to not less than $375 from the State school tax, which is $100 more than is received by districts having a less number of children. Add to the foregoing the fact that enumerators are paid by the name, and it will be seen that an exact and honest school census is important.

For several years complaints have been frequent that certain districts of the State, cities more especially, were sending in "padded" returns, and were thereby profiting, it was supposed, at the expense of other districts. The evidence of this carelessness, if not dishonesty, in obtaining the school census under the existing law, induced the New Jersey Legislature at its last session to enact a new law, creating a State superintendent of the school census and giving that officer large discretionary powers, which it was believed would enable him to secure an accurate enumeration of the school children of the State. This officer is appointed by the State Board of Education for the period of five years. He in turn appoints all the enumerators for the State, subject to approval by the President of the State Board of Education. He has the power, with the approval of the State Board of Education, to establish such rules and regulations as may be necessary. In general, the act was designed to create a central and responsible head for this important branch of the State educational service. The principal defect of the old law—and, for that matter, of school census laws in most States—was that it gave to the various school boards and district trustees throughout the State, the power to appoint the local enumerators, who from the nature of the case might be expected to have at heart the interests of their respective districts rather than those of the State at large. There was also no central officer to investigate the returns and inflict a penalty for inaccuracy or dishonesty, and various abuses constantly arose.

These abuses may be classified as follows:

(1) The exaggeration of the census for the extra compensation to the enumerator. This was the case in several of the larger cities. It was made possible by the failure of the old law to provide any means of detection and punishment. (2) The exaggeration of the census for the purpose of raising a district from the $275 class to the $375 class, by adding a few names where the census fell slightly below forty-five children of school age in the district. This kind of offense was the more readily condoned by local boards because it relieved the district oftentimes from local taxation. (3) Local pride in reporting a large school population with no motive of securing a large State appropriation.

The present law, which makes the census a State and not a local matter, removes very largely the foregoing incentives to inaccurate or false returns. It is one of the instances in which the principle of centralization may be introduced into our American school system with advantage. To secure an accurate United States census by allowing the various parts of the country to appoint and supervise the local enumerators would hardly be thought of. Still, the motive for making inaccurate returns from a single district is by no means so great in the case of the United States census, since no apportionment of moneys is dependent thereon.

As a sufficient proof of the successful operation of the new law, the last school census of the State of New Jersey shows a decrease of nearly twenty thousand in the school population of a single city as compared with the returns of the preceding year. Several other cities of the State also show a falling off of greater or less dimensions. Over fifty of the smaller school districts showed a decrease in school population that could only be attributed to the inaccuracy of the enumeration of previous years.

In order to test the accuracy of the enumeration under the new law, several cities ordered recounts, at their own expense, but found the results of the official State census substantially correct.

In many instances the inaccuracies above pointed out could fairly be ascribed to carelessness alone, due to the hasty and superficial manner in which the work had formerly been done. The easiest way to take a school census was found to be to copy the list of the preceding year, and to add thereto a number of names, presumably enough to cover the natural increase of population. That this practice was followed in some of the cities of the State there is positive proof. In other cases, however, there was undoubted and designed fraud.

The present law, by putting the appointment of enumerators in the hands of one man—a State officer—and by giving him adequate power to investigate and punish all violations of the census rules and regulations, is believed to be an advanced step in school legislation. That similar abuses of the school census exist in almost every State where the school census is made the basis of a distribution of the public school tax—and even where there is no such distribution of public funds, but where enumerators are paid by the name, there can be no doubt. The official reports of State superintendents generally allude in disparaging terms to their official school census. That New Jersey should be the first State to attempt to correct these abuses, is fully consistent with its reputation for just laws vigorously enforced.

State Superintendent Wolfe of Missouri has just issued a circular letter to the superintendents of other States, soliciting topics for discussion at the Round Table which this body of educators hopes to hold next summer at Chicago under the auspices of the World's Congress Auxiliary. Of a score or more of topics that might well occupy the attention of the State superintendents, one or two merely can be suggested here. The inter-State recognition of teachers' licenses, which was alluded to in a previous number of the EDUCATIONAL REVIEW,[1] is a live topic and its discussion ought to be fruitful of good results. The prevailing practice of re-examining the most highly accredited teachers before granting a license in another State, is an unwarranted hardship and not infrequently a professional indignity. In no other profession, as, for example, law or medicine—which require of licensees knowledge much more extensive, technical, and exact—is such a practice tolerated. A lawyer who removes from one State to another is required simply to apply to the proper court, and if evidence is furnished that he is a member in good standing of the bar of another State he is admitted by courtesy without any technical examination as to his ability or qualifications.

[1] IV: 101

It is assumed that the original licensing power acted with discretion and in good faith. So also in the medical profession it is required only that a physician seeking admission to practice in another State should satisfy the medical board having jurisdiction that he is a regularly graduated physician of an institution in good standing and is morally worthy. Neither in law nor in medicine is there any re-examination to test a candidate's technical knowledge. Why should such on examination be necessary in the teaching profession?

Is it not feasible for the State superintendents to agree upon some *modus vivendi*, whereby the highest permanent certificate of one State may receive full and free recognition in another? The objection that the lower requirements of some of the States might work to the disadvantage of their neighbors could be easily obviated if the State superintendents were once clearly determined to break down this State exclusiveness and agree on some basis for a general recognition of the licensing power. Until the highest official act of one State shall receiver ecognition in other States, teaching can hardly rise to the dignity of a real profession.

Another subject that may fairly claim the attention of the State superintendents is the educational value of county teachers' institutes and the best plan for their successful operation. Since 1846 teachers' institutes have been a permanent institution in the State of Massachusetts. With nearly fifty years of experience to appeal to, the conclusions reached by the educational officers of that State as to the best plan for organizing and conducting teachers' institutes ought to be very valuable. In most important details, however, the Massachusetts institutes are essentially unlike those of New York, New Jersey, Pennsylvania, and many other States in which school conditions are not greatly dissimilar. A discussion of these details would bring out the comparative merits of the various institute systems.

Critical observers are far from agreed that these expensive State institutions are doing so much as they might to accomplish the purpose for which they were originally established. For often the county teachers' institute is nothing more than a teachers' gala day; no considerable, substantial, permanent good is accomplished. It is not improbable that a free discussion of the weak and strong points of institutes, as they are now conducted by the various States, would lead to considerable change for the better.

Dr. A. G. Young, secretary of the Maine State Board of Health, contributes to the seventh annual report of that body an exhaustive and scholarly treatise on school hygiene. It is a notable contribution to the literature of the subject, because of its scope, its accuracy, and its wealth of material drawn from the highest scientific authorities both at home and abroad. It is also thoroughly practical, and should be carefully studied by those charged with the erection of school buildings.

The Tennessee Association of Schools and Colleges held its annual meeting at the Peabody Normal College, Nashville, on November 3 and 4. The meeting was one of unusual interest. Chancellor W. H. Payne, president of the association, in his opening address set forth the relation which should exist between public schools, secondary schools, colleges, and universities. He drew an illustration from the educational system of the State of Michigan, and showed that the educational confusion which prevails in Tennessee is partly due to the lack of a dominating university which might by its influence control the lower schools.

Among the topics discussed during the meeting were the humanizing influence of the classics in schools and colleges, Latin prose composition in schools, the teaching of formal grammar, and the relation of preparatory schools to colleges and universities.

This Association has now been in existence five years and it is doing much good. It is laboring to accomplish the following specific objects: 1. To raise and make uniform the requirements for admission to the freshman class in the leading Tennessee colleges. 2. To encourage the establishment of preparatory schools all over the State. 3. To separate the colleges and preparatory schools and to induce each to confine itself to its legitimate work. 4. To induce the many unendowed colleges which are really doing but little more than preparatory work to give up the name of college and convert themselves into training schools. 5. To cultivate a public sentiment in favor of a correct educational system. 6. To afford the teachers of the State an opportunity for exchange of views and mutual help. The president for the coming year is Professor J. I. D. Hinds of Cumberland University, Lebanon.

Professor Carpenter's article in this issue[1] complements in an interesting way the recent report by a committee of the Board of Overseers of Harvard College on the teaching of composition and rhetoric in that institution. Harvard is recognized as the college where most thought, time, and money have been expended in endeavoring to make this branch of instruction effective. It is found, nevertheless, that the college instruction in composition is necessarily of the most elementary character, because of the wretched equipment of the students. In this department, then, Harvard College is doing the work of "a mere academy, the instructors in which are subjected to the drudgery of teaching the elements." The reason for this is found to be that "in the matter of English composition the scholar (pupil?) in the preparatory school receives, indeed, nothing which can with any propriety be called an education; he is trained to pass a given examination: that and nothing more."

The committee continued: "So far as writing English is concerned, therefore, the grammar school theory would still seem to be the one enunciated by Dogberry some centuries ago, that 'to read and write comes by nature'; while, in the collegiate preparatory schools another, not very dissimilar theory obtains, under which the scholar who passes hours each day in the oral translation of Greek or Latin authors, is supposed, when a pen is put in his hand and a sheet of paper before him, through some mysterious sleight of hand, to apply without practice his familiarity with the classics to the work of English composition—an educational process which is in fact calculated to produce the desired result in much the same way and just about as rationally as that adopted by the gentleman who, proposing to discuss Chinese metaphysics, read up in the encyclopedia under the two heads of China and Metaphysics, and combined his information.

"Satisfactory results, except perhaps so far as getting boys through an examination and into college is concerned, cannot be expected from such a method. Its crudeness is apparent; it is in no sense Education."

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[1] See page 438

All this is very true, and no authority can remedy the existing state of affairs except the secondary schools themselves. The EDUCATIONAL REVIEW has insisted again and again upon the glaring deficiencies of that class of institutions, not only in respect to English but in many other departments of study. The colleges, however, can assist the schools materially; and perhaps in no better way than by adopting the recommendation of the Harvard report that "the student who presents himself for admission to the college, and who cannot write the English language with facility and correctness, should be sent back to the preparatory school to remain there until he can so write it."

The Committee of Ten, appointed by the National Educational Association to study the various problems relating to the organization and curriculum of secondary schools,[1] held their first meeting at Columbia College, on November 9, 10, and 11. Every member of this committee was present, Presidents Angell, Jesse, and Baker traveling from Michigan, Missouri, and Colorado, respectively, for the purpose. The meeting was eminently successful, and the conviction was freely expressed that the work undertaken could be successfully carried out and would result in a marked improvement in secondary school work throughout the country.

It was determined to appoint nine conferences to meet at various points on December 28 and the following days, each conference to consist of ten persons whose position and reputation entitle them to be classed as experts in some one subject of study in secondary schools. The members of these conferences were selected with great care, and every section, interest, and school of thought will find representation. The names of these persons will not be made public until their acceptances have been secured. The full list will be printed in the next issue of the EDUCATIONAL REVIEW.

The committee, after very careful consideration, adopted the following list of questions, which is to be laid before each conference:

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[1] EDUCATIONAL REVIEW, IV: 203

1. In the school course of study, extending from the age of six years to eighteen years—a course covering both grammar and high school periods—at what age should the study which is the subject of the conference be introduced?

2. After it has been introduced, how many year-week-hours should be devoted to it?

3. How many year-week-hours should be devoted to it during the last four years of the complete course?

4. What topics or parts of the subject may reasonably be covered during the whole course?

5. What topics or parts of the subject may best be reserved for the last four years?

6. In what form and to what extent should the subject enter into college requirements for admission?

7. Should the subject be treated differently for pupils who are going to college, for those who are going to a scientific school, and for those who presumably are going to neither?

8. At what time should this differentiation begin, if any be recommended?

9. Can any description be given of the best method of teaching this subject throughout the school course?

10. Can any description be given of the best mode of testing attainments in this subject at college admission examinations?

11. If college admission examinations are divided into preliminary and final, what parts of this subject should be reserved for the latter?

These questions, every word in which was carefully weighed by the Committee, reduce to their lowest terms the pressing problems in secondary education. The subjects of the several conferences are: Greek; Latin; English; modern languages; history, civil government and political economy; physics and chemistry; natural history (including biology, zoölogy, and botany); geography (including physical geography, geology, and mineralogy); mathematics.

Perhaps no other university in the world could found and sustain such a publication as *The Harvard Graduates' Magazine*, the first number of which has recently appeared. It is a quarterly magazine supported and edited by graduates of Harvard, and is to be devoted to informing the alumni regarding the development of that institution. Such a magazine is sure to have a great educational value, for every step in Harvard's development will be carefully explained, and perhaps criticised, in its pages. The official summaries and reports will always be more interesting than the articles, although President Eliot's contribution to the first issue—a paper on the Schools' Examination Board of Harvard University—will deservedly attract general attention.

Two passages from President Eliot's speech at the last Alumni dinner—which is printed in full in the first issue of the new journal—are of unusual importance and should be quoted. In reporting that several officers of instruction had refused calls to other institutions at an advance of salary, and that three persons had accepted calls to Harvard at a lower compensation than they formerly received, Mr. Eliot said:

"Why is this? Probably the same reasons do not influence all of these gentlemen, but I have learned by talking with them some of the reasons which affect them all. One is the dignity, age, and stability of this institution; another is the perfect freedom of opinion which here prevails; another is the experience and habitually considerate practice of the governing boards. Our teachers are men of consideration, receiving great respect in this community. Another is the important collection of books which here is accessible to all teachers and scholars, with a freedom unexampled, I believe, in the world. Another, and this was told me but lately by one of the younger men, is the sense that a man here may be a critic of the governing boards of the administration, of the majority in his faculty—may be a strenuous opponent of measures which commend themselves to the administration of the majority, and yet he will never for a moment be suspected of disloyalty to the institution." This surely describes a most admirable academic atmosphere, the loss of which could never be compensated for by a mere increase of stipend.

The second passage contains a fine description of the American university of the future. It is as follows: "I think that we may fairly say we are now well on the way to the complete organization of a university in the true sense, a university based upon a large body of strong, well-organized, various secondary schools, a college and a scientific school which by their requirements for admission set the standards of the secondary schools, and then professional schools which by their terms of admission set the standard and lend support to all colleges and schools of science. We have never yet had that university in America; we have it not to-day. Our professional schools thus far have never supported the law schools and colleges of our country, because, with the exception of the graduate school and the divinity school, they have not required a bachelor's degree as a condition of entrance into the professional schools. I think we may say that within ten years from now we may reasonably expect to have the University fully organized in all its grades—the grade of secondary education, the grade of collegiate and scientific school education, the grade of professional education. Toward this goal the Faculty have steadily tended for the last twenty years. The goal seems to be in sight."

A most encouraging sign that the universities are paying more serious attention to education, is the synopsis of lectures on the philosophy of education printed by Professor Howison of the University of California for the use of his classes. The course includes sixteen lectures and a series of conferences. The lectures are truly philosophical in aim, scope, and method, and deal with the real underlying principles of the educational process. Character, or rational freedom, is conceived to be the end of education; and a most interesting relation is worked out between Character and Good Fortune, the latter being treated as education's subsidiary end.

The Psychological Laboratory of Yale University has undertaken the task of applying the psychological methods of experiment to educational problems. One of the problems attacked is the determination of the rapidity of movement in the various methods of writing and the fatigue produced in each case. It is expected that this will decide the discussion of straight *versus* script writing, which was discussed in a recent issue of this REVIEW.[1] Questions concerning the proper holding of the pen, position at the desk, kind of desk, etc., are all involved. For the sake of comparison, it is very desirable to have as large an assortment as possible of desks, pens, copy-books, and other material, and it is hoped that the makers of such articles will be willing to send samples to the laboratory in New Haven to be tested.

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[1] IV: 290

The recent announcement that the Union Theological Seminary has, under legal advice, severed its formal relations with the General Assembly of the Presbyterian Church, is of considerable significance. It indicates that an important endowment and great prestige are henceforth to be devoted to the scientific study of Christian theology without regard to denominational lines. There are only one or two other institutions in the country where this policy is possible, and the addition of Union to their number is an important one. American theological training has, as a rule, been narrow and technical in the extreme, and the results are plainly apparent at the present time. There are many signs, however, that the tendency formerly prevailing has reached its limit, and it is to be hoped that the example of Union may stimulate other self-respecting institutions to throw off the shackles that bind them to a dead and intolerant past. Of course, the financial difficulty is the main one ; for no denomination will give any portion of its funds or its influence to a theological seminary not wholly under its control. But surely private beneficence and university treasuries will eventually come to the assistance of theological study, as they have to that of law and of medicine.

When the University of Edinburgh opened for the fall term a few weeks ago, women were admitted for the first time to the classes in the Faculty of Arts on precisely the same terms as men. This is the result of a recent ordinance issued by the Universities Commissioners. The experiment was regarded by many with anxiety, but the result, so far, is satisfactory. Over fifty women attended the opening lectures in a single course, and the attendance is expected to increase. The most popular subjects, thus far, are English literature and natural philosophy.

The London *Times* reports some amusing incidents that occurred at the opening lectures. It says :

"Some of the women were rather embarrassed by the amount of attention they received, especially by the cheers which greeted their entrance into the class room. In the natural philosophy class room, a jocular student started the chorus of 'Clementine,' whereupon the refrain of 'Oh, my darling,' was bellowed with infinite zest from a hundred throats. In the logic class, a blushing maiden, accompanied by her brother, sat down upon the same bench with him, but the servitor at once pounced upon her and conducted her to the reserved front benches amid the cheers of the men. In Professor Masson's class the suggestive movement of one of the women, who bent down to ask information from a student near her, was immediately greeted with cries of 'Do it again!'"

If the system is found to work well in the Faculty of Arts, its extension to the Faculty of Medicine (where the demand for it is greatest) can only be a question of time. In the University of Glasgow, on the other hand, the women are taught separately from the men, at St. Margaret's College, which has been incorporated with the university, so that attendance on its classes (taught either by professors or by university lecturers) counts for graduation on the same terms as attendance on the classes of the professors. This is identical with the American "annex" system, as seen at Harvard and Columbia.

A marvelous exhibition of Mr. Gladstone's mental and physical vigor was given by his Oxford lecture, a short time since, on mediæval universities. The address occupied an hour and a half, and abounded in learning and eloquence. It traced the slow evolution of the modern significance of the word "university," and added that from the first, "soaring above the plane of antiquarian learning, it prefigured for itself a very high prerogative, and was fitted, and, as it were, predestined to convey the idea of its ultimate function as the treasure house of all knowledge and the Palæstra of universal instruction." The lecturer then passed to a more particular examination of the part played by Oxford and Cambridge in university history. This part of his subject was treated by Mr. Gladstone in great detail and with abundant illustrations. In referring to Cambridge during the seventeenth and eighteenth centuries, he mentioned the names of Bacon, Milton, and Newton, which he arranged in the order of chronology rather than greatness, as "names before which we can only bow." In the production of men of action, Mr. Gladstone gave the palm to Oxford, and claimed for the same university five of the seven greatest ecclesiastics of the English Church since the Norman Conquest—Wycliffe, Wolsey, Laud, Wesley, and

Newman. The lecturer's bold tribute to Laud has attracted much attention, by no means wholly unfavorable, in England.

Looking to the future, Mr. Gladstone saw two chief dangers confronting the English Universities—one that, in research, considered as apart from their teaching office, they should relax and consequently dwindle ; the other that, under pressure from without they should lean, if ever so little, to that theory of education which "would have it construct machines of so many horse-power, rather than form characters, and rear into true excellence that marvelous creature we call man ; which gloats upon success in life, instead of studying to secure that the man shall always be greater than his work, and never bounded by it, but that his eye shall boldly run, in the words of Wordsworth,

> 'Along the line of limitless desires.'"

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